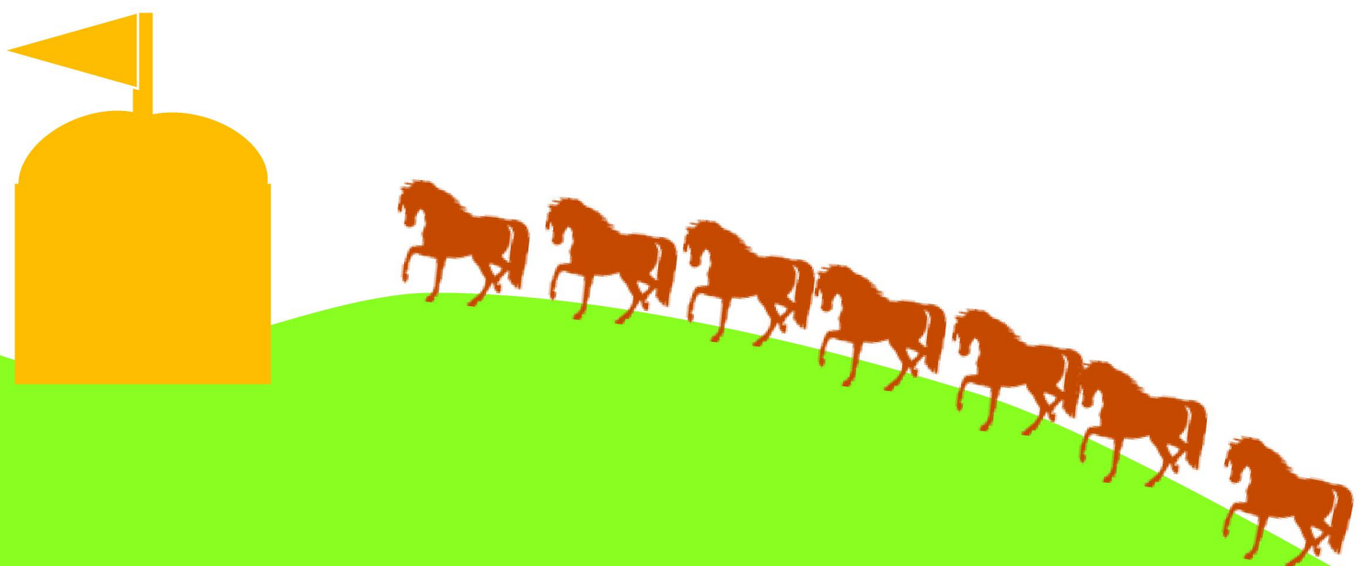
Report of the 2015 Asia & Pacific Nation Network (APNN) Meeting

June 25-27, 2015

Ulaanbaatar, Mongolia



Women in Science, Technology, Engineering and Mathematics in Mongolia

Japan Network of Women Engineers and Scientists(JNWES)

International Network of Women Engineers and Scientists(INWES)

Report of the 2015

Asia & Pacific Nation Network (APNN) Meeting

&

International Conference in Science, Technology, Engineering and Mathematics in Mongolia (ICWSTEM)

June 25 – June 27, 2015

Ulaanbaatar, Mongolia

Woman in Science, Technology, Engineering and Mathematics in Mongolia (WSTEM)
Japan Network of Women Engineers and Scientists (JNWES)
International Network of Woman Engineers and Scientists (INWES)

Organizing Committee

Chair of APNN Kayoko Sugahara (JNWES)

Co-Chair of APNN Ariunbolor Purvee (WSTEM Mongolia)

Chair of ICWSTEM Undram Chinbat

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25-26 June 2015 APNN & ICWSTEM in Mongolia , 27 Bus tour to 13th Villege
















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APNN 2015

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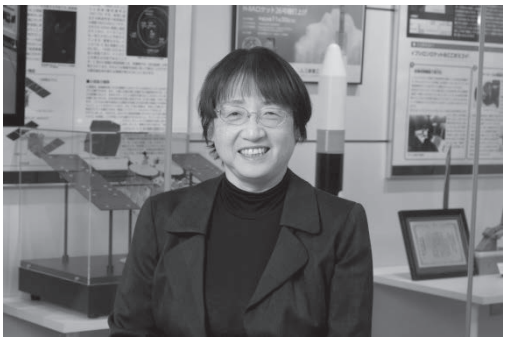
APNN Chairperson's Welcome message

Kayoko Sugahara: Presidento of JNWES



Welcome to 2015 Asia Pacific Nation Network Meeting! Welcome to Mongolia !

It is my great pleasure to meet with all of you at The 5th APNN meeting, and I especially dedicate my heartfelt condolences and gratitude to attendance of Nepal. This is the first APNN meeting for me and JNWES (Japan network Women Engineers and Scientist) as the chair, succeeding KWSE. I hope we could follow on KWSE's past significant establishments of leadership and developments.

Since we had the first time network meeting in Australia 2011, we have focused our efforts on STEM based women networking in Asia. There are so many diversity discussions in the worldwide today, but I believe "Women and STEM" would be the best of the key words to solve our challenges of society. Human being was born with technology and the truth is with Science. Women's sense is far deeper than men. We, women can find pains and share to solve. I believe the way of the art is networking.

Since APNN establishment in 2011, we achieved a lot of milestones of rapid increase of new members and new organizations. In 2011, Twist (Taiwan Women in Science and Technology) was founded and they hosted 2013 APNN. In 2012, WSEM (Women in Science, Technology, Engineering and Mathematics) in Mongolia was established, and they host 2015 APNN today. We are all proud of them. I should encourage you to contact other Asian countries, which don't have Women in STEM organizations yet, invite them to join APNN, and help them to set up STEM associations. I also encourage you, who has not been the host country of APNN yet, to consider being in near future. I'm sure you will get very useful experience thorough hosting global conference. In the last, APNN is INWES's outreach in Asia, and I believe we would give a big impact to INWES in near future.

Through this APNN meeting, we can learn from each other in experience, share issues that women scientists and engineers are facing today, and finally understand each other more deeply. I really hope this opportunity would be good experience for your future as a women scientist and engineer.

I welcome you again and wish you have a great time at APNN meeting in Mongolia.

Kayoko Sugahara

APNN chairperson

Welcome Message from Chair of Woman in Science, Technology, Engineering and Mathematics

Ariunbolor Purvee：President of WSTEM in Mongolia

On behalf of the Network of Mongolian Woman in Science, Technology, Engineering and Mathematics, it is our pleasure to welcome you to the fifth Annual Meeting of the Asia Pacific Nations Network (APNN) and the first international conference of Women in Science, Technology, Engineering and Mathematics (ICWSTEM).

We are a group of professional woman working to improve the chances for current and future women teachers and researchers in science, technology and engineering. Advancements in STEM fields move quickly, and well-educated women are needed now and in the future for mentoring, supporting, and otherwise inspiring young women to enter and succeed in STEM fields. The Network of Mongolian Women in STEM is grateful for the support, time, resources, and experience of INWES and APNN members to help our country develop in this regard. You are helping us make a better future for Mongolian women scientists, now and in the future, by showing us the way. Thank you for your participation in this historic meeting in Mongolia.

This conference is the largest event WSTEM in Mongolia has attempted, giving us the visibility we need to let Mongolians know about our organization and yours. Through the contacts of our Board Members, TV, radio, Twitter, Facebook, and magazine and newspaper interviews, we have reached a wide audience in Mongolia to explain about INWES, APNN, ICWEST and WSTEM in Mongolia. Our members are increasing based on this conference, which will allow us to continue our work more effectively once the conference comes to an end.

Thank you for selecting the Association of Mongolian Women in STEM to organize the fifth Annual Meeting of Asia Pacific of Nations Network (APNN). Thank you also for all the assistance and support from our sponsors such as the Mongolian University of Science and Technology, the Ministry of Education and Science in Mongolia, the Foundation of Science and Technology, the International Finance Corporation and the German Agency for International Cooperation.

We appreciate the many members and organizations that have worked so hard to make the APNN, ICWESM conference successful. The Organizing Committee and Board Members all worked long hours and put in a great deal of creative effort.

Finally, thanks to the participants of this Conference! It is due to your keen interest that the participation of women in STEM fields is expanding. We hope your participation in Mongolia this week will broaden your international academic network with women in STEM.

Enjoy the conference and your time in beautiful Mongolia!

Founder and President of WSTEM in Mongolia

Ariunbolor Purvee

Welcome Message from President of the International Network of Women Engineers and Scientists (INWES)

Kong-Joo Lee, Ph.D. : President, INWES

Dear Participants of the 2015 Asia & Pacific Nation Network (APNN),

Warm greetings to our all participants.

As President of INWES, the International Network of Women Engineers and S cientists, I would like to express my heartful welcome to all the participants of APNN. I am so proud to be holding the fifth APNN meeting organized by one of our new organizations, WSTEM, in Ulaanbaatar, Mongolia.

I would like to thank the efforts of our host organization WSTEM and President of WSTEM, Dr. Ariunbolor Purvee, and their members for hosting and preparing this APNN. I also would like to thank INWES-Japan which is the host organization for 2015-2017, APNN chairperson Kayoko Sugahara, speakers, and guests from many countries.

The International Network of Women Engineers and S cientists (INWES) is an international network body serving as an NGO, as a partner of UNESCO. INWES was created with the vision “To build a better future worldwide, through the full and effective participation of women and girls in all aspects of Science, Technology, Engineering and Mathematics (STEM.)”. INWES oversees the International Conference for Women Engineers and Scientists (ICWES), which has been hel d every three years in various parts of the world for supporting Women in Engineering and Science since 1964. ICWES16 was held in October, 2014 in L.A., USA. However, the venues for ICWES can be difficult to reach in distance for some of our members.

APNN, the Asia and Pacific Nation Network, was established under the umbrella of INWES, as the first regional network, in 2011. INWES has established the regional network to foster and promote its activities in a physically close and similar time zone region, because they have common interests as well as regional problems that can be s olved together. APNN was launched in 2011 during ICWES15 in Adelaide, Australia. The second APNN was held in Kuala Lumpur Malaysia organized by WISET in 2012, the third one in Taiwan organized by TWiST in 2013, and the fourth on in Seoul organized by KWSE last year. For the last four years, APNN has published the annual report to share the information, established new organizations in Taiwan, Mongolia, Nepal, Sri-Lanka and Vietnam, and approved the policy manual to suggest APNN norm.

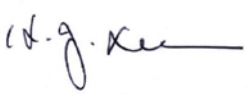
INWES has been planning and organizing Regional Network Meetings to accommodate as many women scientists and engineers as possible and benefit from the international network. APNN can more effectively put women in the respective regions in touch with the international communities as well as encouraging them to discuss common topics, projects and i nitiatives. We can collaborate more closely and more frequently.

I am expecting 2015 APNN to be another “herstory” for advancing women engineers and scientists in Mongolia and Asia and the Pacific Nations. APNN has been planting a seed for women’s solidarity in Asia and Pacific nations and cultivating the new born organizations.

We anticipate that we will discuss on “Women in Education Reform and Innovation” at this 5th APNN. We will share our experiences, our passions, times, energies and ideas and care for each other and learn from one another, which will empower us as Women Scientists and Engineers to play key roles for making changes for a better world. We hope that through INWES and APNN, helpful and useful information will nourish our women scientists and engineers in the Asia and Pacific nations.

I look forward that we all will be inspired at 5th APNN and have a great and meaningful time by opening your hearts and reaching your hands out. I hope we all enjoy the Ulaanbaatar, Mongolia, the land of Genghis Khan

Sincerely yours,



Kong-Joo Lee, Ph.D.

President, INWES

Welcome Message from the Mongolian University of Science and Technology

Ochirbat Baatar：President of the Mongolian University of Science and Technology

On behalf of the Mongolian University of Science and Technology, I feel deeply honored to welcome all the distinguished guests, speakers and participants to this Meeting of Asia and Pacific Nation Network and the International Conference on Woman in Science, Technology, Engineering & Mathematics. Education reform and innovation. The topic of the conference is the first time in Mongolia for this kind of conferences So we are welcoming women scientists, engineers, mathematics from Asia Pacific countries to our university and to Mongolia.

I am happy with the Network of Mongolian Woman in Science, Technology, Engineering (WSTEM in Mongolia) that is creating and supporting career paths for Mongolian women and girls culminating in leadership roles in science and technology, now and in the future- is organizing one of biggest event in Mongolia.

The term “Education reform and innovation” is abundantly clear not only to cover an university excellence in its innovation, training and research activities, but it is one of the most important challenges for modern universities defining its competitive capacity for 21st century in the global higher education. In that sense, many national governments are initiating and implementing special policies and national projects that promote the establishment of “Education reform and innovation”.

Mongolian University of Science and Technology, as one of the leading public universities in Mongolia is declared in its mission statements by the year 2021 to undertake all the necessary measures to become a “entrepreneurial”. The University is implementing a comprehensive reform process to convert the MUST into one of the leading universities in Asia in coming decade. After democratic changes in Mongolia in nineties, MUST has been successfully implemented a credit-based curriculum, and during the last years its e-learning modules are became very popular.

Nowadays MUST starting adaptation of worldwide CDIO initiative, education framework to re-design engineering programs. In the march of this year we are excepted as a new member of “CDIO Worldwide initiative”, that collaborates more than 120 leading universities and other types of higher education institutions.

Last years, the Government of Mongolia has been pushing to improve the quality of higher education, create a world – level university course and establish modern university campus in order to the foster development of knowledge based economy in the country. Therefore, we find that one of key elements of the higher education reform is the effective international cooperation. To train leaders who can contribute to the practical resolution of global problems facing people living in various countries and regions in the world, as well as organizations including governments, companies, and NGOs, and to extend public and social benefits globally.

So, I hope this International Conference of Women in STEM and Education reform and innovation, which the Network of Mongolian Woman in Science, Technology, Engineering and Mathematics organizing in these days, could provide an opportunity to exchange new ideas,

new approaches and experiences for Development of Higher Education Reforms and University Excellence in Innovation and Entrepreneurship for all participating countries.

Finally, I believe that you will find the conference productive, informative, memorable and enjoyable.

We are warm-heartedly extending our welcome to you and very glad to see you in Mongolia!

Ochirbat Baatar

President of the Mongolian University of Science and Technology

APNN2015

Special Talks

APNN Special Talk

History and propose the perspective of APNN

Hyang-Sook Yoo, Ph.D
Researcher emeritus,
Korea Research Institute of Bioscience & Biotechnology
(Former chairperson, APNN)

In need of closer communication among woman scientists and engineers in the regionally nearby nations, Asia Pacific Nation Network (APNN) has been organized since 2011. We have had annual meetings in Australia, Malaysia, Taiwan, and Korea and shared our thoughts and had chance to know and understand each other better. We began to open up our mind and talk.

The importance of the woman's role in the society has not been well recognized and we women also have tendency to under-evaluate our capacities to play roles for the development of better society and forget what we are. Through the meeting we began to understand the current status how women including scientist and engineers are considered in each country and became aware our responsibility for the society.

Woman is not only a center for the family but also a focal point of making society better. To do that we should be able to understand more of each nation's current issues and woman's thought on how to approach to make our society better. As a scientist or engineer it can be rather easier to organize and work together.

Since we began to have networking system among Asia-pacific nations, it will be a useful means to communicate and build our collaborative network for capacity building in our field of expertism in science and engineering and for tackle the gender issue, work balance, and other issues. We can do lot more if we do it together

I will present what we can do and will propose what we should do for the future as APNN members.

Current status & future direction on woman scientists & engineers in Asia-Pacific Region

2015. 6. 25.
APNN 2015, Ulaanbaatar
Hyang-Sook Yoo
KWSE

Acknowledgement

All the APNN members presented last year.

- Marlene Kanga(Australia)
- Dillip Pattanaik (India)
- Ikoko Imoto (Japan)
- Hye-On Yoon (Korea)
- Jung Sun Kim (Korea)
- Rosaline Ganendra (Malaysia)
- Ariunbolor Purvee (Mongolia)
- Chia-Li Wu (Taiwan)
- Phan Thi Toi (Vietnam)
- Durdana Habib (Pakistan)
- Punyavana Vishaka Hidellage (Sri Lanka)
- Jun Hada (Nepal)

KWSE

What is APNN ?

- Asia-pacific nation network as an Asian regional meeting of INWES
- It is to promote the role of women scientists and engineers in Asian and the Pacific Nations

What APNN is for?

- Establish common index on women in STEM
- Collaboration between Asia/Pacific nations
- Annual meetings/workshops for more interactions among members
- Publish reports and studies on situations in member countries
- Mentoring and Coaching for local youth
- Human exchange (database construction)
- Projects for collaborative programs

The APNN Meetings 2011-2014

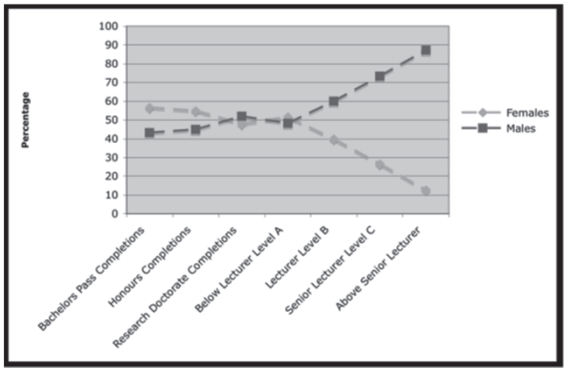
- July 19, 2011, Adelaide, Australia (during ICWES15)
  - 59 participants
    18 countries
    - Australia, Cameroon, Canada, France, India, Indonesia, Japan, Korea, Kuwait, Malaysia, Mongolia, New Zealand, PNG, Spain, Taiwan, UK, USA, Vietnam
- June 13, 2012, Kuala Lumpur, Malaysia(during 2012 WiSET hosted by IEM)
  - 38 participants
    14 countries
    - Australia, UNESCO(France), India, Japan, Korea, Kuwait, Malaysia, Mongolia, Myanmar, Pakistan, Philippines, Singapore, Taiwan, Vietnam
- September 14, 2013, Taipei, Taiwan (during 2013 IConWIST hosted by TWiST)
  - 60 participants
    12 countries
    - Australia, France, India, Japan, Korea, Malaysia, Mongolia, Canada, Philippines, Taiwan, Vietnam, New Zealand
- July 30, 2014, Seoul, Korea hosted by KWSE (Korea)
  - 117participants
    13 countries
    - Australia, France, India, Japan, Korea, Malaysia, Mongolia, Taiwan, Vietnam, USA, Pakistan, Sri-Lanka, Nepal

Current status of each member country

Australia

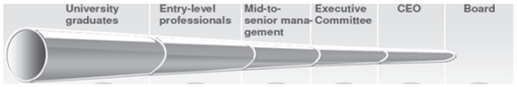
Marlene Kanga

CAREER PROGRESS: Women in Science



Source: Australian Government, Department of Education, (DEEWR), Selected Higher Education Student Statistics 2007; DEST Special Report FTE Staff in AOU Groups 2007

Leaky pipeline



WOMEN - AUSTRALIA CORPORATE	57%	45%	37%	12%	3%	17%
	LOSSES TO THE ENGINEERING PROFESSION					
	STUDENTS	GRADUATES	MEMBERS	FELLOWS		HON FELLOWS
ENGINEERS AUSTRALIA WOMEN MEMBERS	14%	14%	7%	3%	-	3%
	<24 YRS	24-34 YRS	34-49 YRS	50-59 YRS		ABOVE 59
CENSUS 2011 WOMEN ENGINEERS	17%	17%	12%	7%	-	3%
CENSUS 2011 - EXCL O/S BORN WOMEN ENGINEERS	9%	6%	4%	2%	-	1%

KEY ISSUES FOR WOMEN IN STEM

	Percent
Work/life balance	35.6%
Workplace culture	24.1%
Lack of access to senior roles	19.0%
Lack of women in senior roles	18.9%
Lack of role models	17.5%
Lack of career support	16.8%
Unclear career objectives	15.3%
Lack of job opportunities	14.1%
Lack of networks	13.2%
Career limits in technical roles	9.2%
Discrimination	9.1%
Lack of other women in workplace	7.9%
Access to training	6.4%

SOURCE: WOMEN IN THE PROFESSIONS SURVEY, APESMA, 2007

India

Dillip Pattanaik

Social discrimination on woman in India

- The social discrimination against women starts at an early age, right from childhood the girl is always counseled to learn to be patient, to adapt, adjust & submit.
- She is supposed to change her home after marriage and spend a major part of life in her husbands family.
- Preference for the male child and discrimination in his favor
- When the girl grows up due to lack of social safety, she cannot move around as freely as the boys.
- When she marries , she is supposed to cope with three varied roles of being a wife, a mother & managing the household ,in all aspects.

Gender, Science and Technology for Sustainable Human Development

1. Ensure basic education for all, with particular emphasis on scientific and technological literacy, so that all women and men can effectively use science and technology to meet basic needs.
2. Ensure the equal opportunity to acquire advanced training in science and technology and to pursue careers as technologists, scientists and engineers.
3. Achieve gender equity within science and technology institutions, including policy and decision making bodies
4. Ensure that the needs and aspirations of women and men are equally taken into account in the setting of research priorities and in the design, transfer and application of new technologies
5. Ensure equal access to the information and knowledge, particularly scientific and technological knowledge, that they need to improve their standard of living and quality of life.
6. Recognize local knowledge systems, where they exist, and their gendered nature as a source of knowledge complementary to modern science and technology and also valuable for sustainable human development

WISE - INDIA

Aims to create career opportunities for women by *increasing awareness*, *providing support*, enhancing capacity *building* and by *influencing policies for promoting women* in the field of science and engineering.

Provides a platform for *dissemination and sharing of knowledge, mentoring, professional development* and *networking opportunities* to facilitate the success of women in the science and engineering related fields.

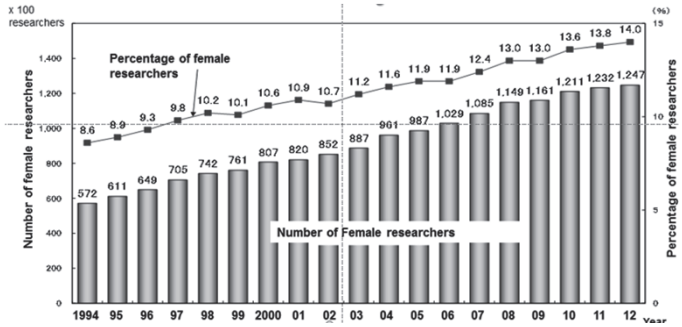
Conducting a monthly Lecture Series, BEACON, invite successful women engineers / scientists role models in India to share the stories of professional success.

Helping NePal, Sri Lanka for building network among WISE

Japan

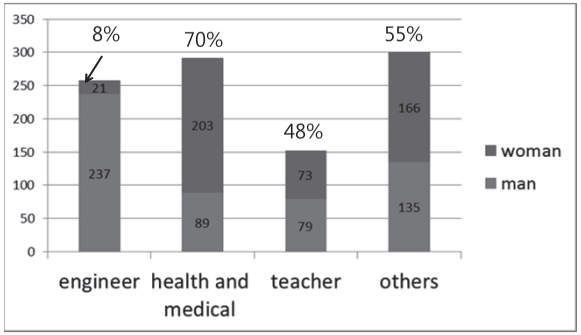
Ikoko Imoto

Changing slowly.



Number of Female Researchers are only 14% .
But is growing at a steady pace.

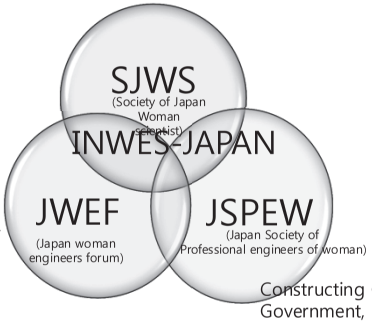
Only 8% of professional engineers are women



Employed professional person by group 2013Annual Ave.
(Ministry of Internal Affairs and Communications 2013)

Networking of Scientists and Engineers (~600 members)

University and Research Institute



Industrial and IT Companies

Constructing Consultants, Government, Civil Engineer Companies

Summer camp for junior high and high school girl student.

(by NWEC (National Women's Education Center) and JST(Japan Science and Technology Agency), MEXT, JST)

"Think about your future as a scientist and engineers".

Poster exhibition by both JSPEW and SJWS.
Demonstration of laboratory experiment by SJWS.

"What is your interest. Which way to take."

Attended by 129 high school and junior high school girl student.

National Women's Education Center of Japan

INWES-Japan Continue the program for education and networking of women in S&T area.

- Encourage women to be in S&T area.
  - Seminar for high school student.
  - Technical salon for girl students
  - Roll Model Café.
- Learning
  - Seminars and tours.
- Publication and writing of role models of women.
  - Writing essays to papers and magazines.
  - Publication of a booklet
- Award
  - Award female scientists and engineers for distinguished service and outstanding achievement.

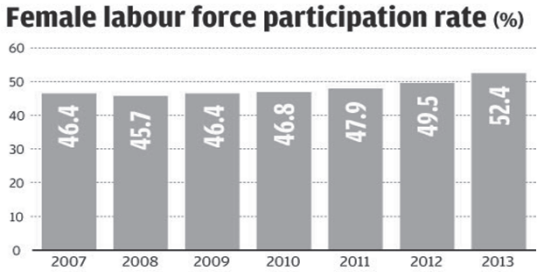
Positive action

- An action promoted by Gender Equality Bureau Cabinet Office since 2002
- Gender Equality Bureau Cabinet Office pr oposed a Positive Action to promote gen der equality in 4 areas, which are politics, government services, technology and res earch, and employment

Malaysia

Rosaline Ganendra

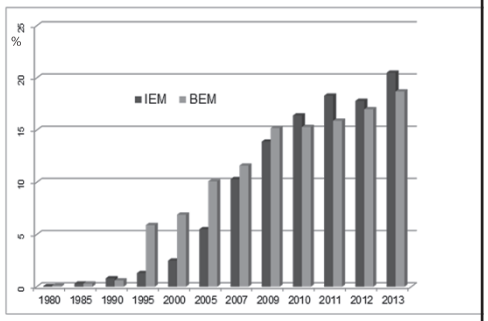
WOMEN WORKFORCE IN MALAYSIA



Source: Department of Statistics, 2013.

WOMEN ENGINEERS IN MALAYSIA

	IEM		BEM	
	WOMEN ENGINEERS MEMBERS	%	TOTAL REGISTERED WOMEN ENGINEERS	%
1980	2	0.05	10	0.1
1985	22	0.3	23	0.3
1990	85	0.8	58	0.6
1995	168	1.3	1,540	5.9
2000	372	2.5	2,478	6.9
2005	839	5.5	5,031	10.1
2007	1,544	10.3	6,609	11.6
2009	2,685	13.9	8,967	15.2
2010	4,071	16.4	10,296	15.3
2011	8,216	33.1	11,400	15.9
2012	4,116	17.8	13,623	17.0
2013	6,194	20.5	15,774	18.7



Source : The Institution of Engineers Malaysia
Board of Engineers Malaysia

Statistics of Academy of Sciences in Malaysia

	Male (Living)			Female (Living)		
	No of appointed Fellows	Total	%	No of appointed Fellows	Total	%
1995	34	34	97.14	1	1	2.86
1996	5	39	97.50	0	1	2.50
1997	6	45	97.83	0	1	2.17
1998	6	51	98.08	0	1	1.92
1999	7	58	93.55	3	4	6.45
2000	4	62	93.94	0	4	6.06
2001	7	69	93.24	1	5	6.76
2002	12	81	94.19	0	5	5.81
2003	14	95	91.35	4	9	8.65
2004	2	97	91.51	0	9	8.49
2005	7	104	92.04	0	9	7.96
2006	12	116	91.34	2	11	8.66
2007	7	123	89.78	3	14	10.22
2008	9	132	87.42	5	19	12.58
2009	14	146	86.39	4	23	13.61
2010	10	156	85.25	4	27	14.75
2011	16	172	85.57	2	29	14.43
2012	19	191	84.89	5	34	15.11
2013	14	200	83.68	5	39	16.32
2014	16	216	83.08	5	44	16.92

Source : ASM

WOMEN TRANSFORMATION AGENDA

- Provide specialized programmes for Women in Leadership & Management skills
- Have 30% participation of Women Capital in Corporate, Ministries, Government Agencies and Government linked companies
- Provide grants and incentives for private sector with shareholders & directorship comprising 30% or more
- Tax incentive designed to encourage employers to provide relevant trainings for women who are being re-employed after their career break and also for employers that encourage Work Life Balance
- Include Women in Engineering driven companies at Management /Decision making Levels
- Create agency lead by Women to monitor, track & spur head the Women driven economy

Source: etp.pemandu.gov.my/

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IEM WE: 5 YEAR STRATEGIC PLAN

Source: www.iemwomenengineers.org

Mongolia

Ariunbolor Purvee

Higher education

Total students in 2013

	female	male	Female	Male	Total
2011	58%	42%	101,455	68,671	**170,126**
2012	59%	41%	101,557	71,241	**172,798**
2013	60%	40%	102,427	73,164	**175,591**

The percentage of degree holders of faculty
in Mongolian universities, institutions and colleges, by gender

Degree	Female	Male	Female	male
Bachelor	6%	4%	409	289
Master	44%	24%	3,230	1,753
PhD	10%	13%	728	916

Current Women Students in 2013 - by all degrees and fields

Fields	Bachelor	Master	PhD
Education	81%	83%	83%
Health Science	79%	78%	78%
Human science	71%	81%	81%
Social Science	64%	63%	63%
Others	62%		
Agriculture	56%	58%	58%
Natural Science	39%	55%	55%
Engineering	31%	40%	40%
Service	27%	45%	45%
Total	**58%**	**63%**	**63%**

In engineering, only 31% of total students are women in bachelor degree, 40% in master degree, 40% in PhD degree. The percentage of fema le students in engineering was 38% in 2006 and 31% in 2012, respectively.

WSTEM in Mongolia

- Networking with faculty to improve their writing and reading skills for submitting scientific papers.
- Organized and offered two short courses on this topic
  - Mendeley for reference manager
  - Academic writing for young women faculties
- Collaborating with China Coal Overseas Development Co., Ltd to organize the twenty one days short course under "International Training Workshop on Fully Mechanized Coal Mining Technology 2014" in September, 2014
- Networking with Mongolian mines to find some women engineers who work currently mine sites since Feb 2014

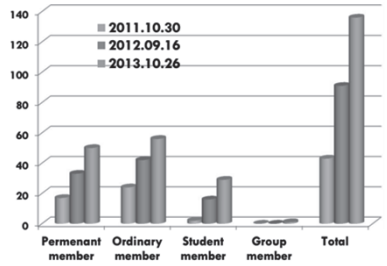
Taiwan

Chia-Li Wu

Members

(Taiwan woman in science & technology (TWIST))

- Total members: 157 (2014/6)



Gender distribution		
Gender	No	Ratio
Female	137	87.3%
Male	20	12.7%
TOTAL	157	100%

Main activities

- Annual meeting of all members.
- Publication of e-journal monthly since 2008.
- Biannual symposium with other women scientist groups.
- Monthly/season gatherings among local members.
- Scholarships for young female scientists.
- Mentor-Mentee programs for members as well as friends of members

Documentary Films— Insights of Female Scientists

The story of Professor Wu in Taiwan's newspaper

Phytochemist

Urologist & Dentist

35

Seasonal gatherings

- Hold small and local gatherings monthly, such as enjoying gourmet at special restaurants, hik ing/field trips, or daily-life related talks given by members.

Vietnam

Phan Thi Toi

VAFIW
(Vietnam Association for Intellectual Woman)

Member ship development

- In 2013: VAFIW recruited 600 members and established 3 branch organization
- 6 organizations that belong to science institutes, universities and ministries plan to open new branches.
- In 2013: VAFIW expanded new branches and recruited new members, abroad Vietnamese intellectual women from United States, Australia, and Austria.

The establishment of science and technology centers

- With the aim to strengthen professional activities and create a working environment for female intellectuals of different ages,
- VAFIW establishes science and technology centers and methodology for intellectual transfers.

The mission

- VAFIW has a policy to find out, foster and honor the young talented female intellectuals
- VAFIW creates the sources of inspiration and motivation for learning and promotion for young intellectual women.
- VAFIW gives out scholarships for young talents not only to do research in local universities but also study and research abroad.

- To illustrate, VAFIW encourages many scientists to apply for L'OREAL UNESCO's scholarship.

Pakistan

Durdana Habib

Millennium Development Goals

- Goal 1: Eradicate Extreme Poverty & Hunger
- Goal 2: Achieve Universal Primary Education
- Goal 3:Promote Gender Equality and Empower Women (Eliminate gender disparity at all levels particularly in education by the year 2015)
- Goal 4: Reduce Child Mortality
- Goal 5: Improve Maternal Health
- Goal6: Combat Malaria, HIV and other diseases
- Goal 7:Ensure Environmental Sustainability
- Goal 8: Develop a Global Partnership for Development

Existing Women Networks

- Women Engineers Forum, Institution of Engineers, Pakistan
- Women in Engineering, Science & Technology
- Women in Engineering, Affinity Group, IEEE
- Foundation for Advancement of Science & Engineering
- International Organization of Pakistani Women Engineers

NePal

Jun Hada

Key Barriers and Issues

THERE ARE NUMEROUS SOCIAL, CULTURAL AND ECONOMIC BARRIERS FOR FEMALES TO GET ENGINEERING QUALIFICATION AND LATER RETAIN IN THEIR PROFESSION

1. Traditionally, Engineering activities are more suitable for males than females, if they include field visits and site supervisions.
2. Lack of awareness among family members and individuals
3. Studying this course needs a lot of investment (if one has to study in private institutes) for the family
4. The fee structure of government engineering colleges is cheaper, but admissions are highly competitive.
5. Workplace safety and security for women engineers specially when it requires to travel
6. Reluctance to travel and less willingness to relocate
7. Migration due to marriages, and family taking a priority over career ambitions
8. Difficulty managing work-life balance - women's triple role as mother, manager and employee
9. Lack of career supports and discrimination
10. Lack of support systems at home and workplace
11. Lower possibility to raise gender issues in Engineering Professionalism
12. Lack of confidence leading to difficulty getting a raise respect, lesser professional recognition etc.

1. **Affirmative Actions for excluded groups including women during recruitment**

- Qualified Women and people from excluded group are given preference
- Update the status of their representation in the workforce annually and target to increase their proportionate representation
- Replacement of **female engineers** by only new **females engineers** in case of turn overs
- Support systems – zero tolerance to sexual or any form of harassment, female friendly motorbikes, separate toilets etc.
- Readjustment in other projects and programmes based on their performances

2. Internship Programme for Fresh Female Engineering Graduates

- Reserving quotas for fresh female graduate engineers and recruiting them
- Guide and coach them technically in the field and in the management
- Secure them positions competitive to men engineers once completing their internships

Emergence of Wise Nepal

Women in Science and Engineering in Nepal (WISE – Nepal) is initiated with a :
Goal - Women Scientists and Engineers in Nepal to have better prospects through their active involvement and participation in science and engineering.

It's **immediate objectives** are:

1. Women scientists and engineers in Nepal **take advantage of increased networking** and **knowledge sharing** for their **professional development** in science and engineering related fields.
2. Women scientists and engineers in Nepal **raise their voices** for **indusive and women-friendly policies** in their **workplaces**.

Activities/Progress:

1. Drafted constitution/registration in process
2. Increased members (around 100)
3. Survey for MAPWiST policy research
4. Prepared Action Plan for coming years

Sri Lanka

WISE-Sri Lanka

- Initiated in 2013- Inspired by global movement & with support of WISE India
- Objective -to contribute towards women's engagement in S&E in Sri Lanka. WISE Sri Lanka is still in its infancy and works on:
  - Increase its membership and encourage both men and women to join the movement
  - Creating awareness on the issue through print and social media
  - School level awareness programmes to encourage girls through role modeling

Future Plans- WISE Sri Lanka

- Collect sex disaggregated data on technical higher education to better understand the issues of wome n in S&E, to draw attention to issues based on evid ence
- Highlight actual and potential roles of women scien tists and engineers; e.g. Linking women scientists a nd women's lobbies/media to make policy-makers u nderstand value of women engaged in S&E
- To understand and lobby to address issues that pre vent women from entering in to and practicing prof ession in science and engineering

Korea

Hye-On Yoon
Jung-Sun Kim

KWSE

(The association of Korean Woman Scientists & Engineers)

- Established in 1993 with 250 members (now in 2014, 1,420 members)
- The first organization in Korea for women scientists and engineers of all disciplines

●KWSE is fostering women scientists and engineers to lead 21st century and playing active-roles in promoting the rights of the women scientists and engineers and establishing network.

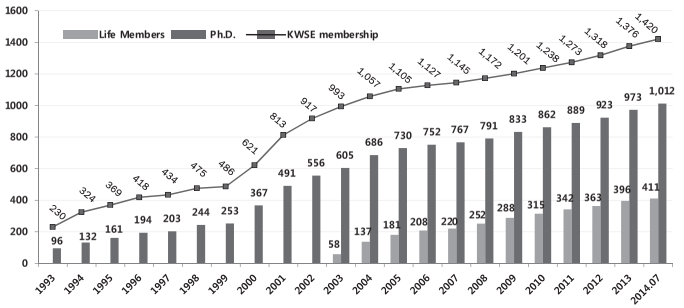
- **More woman participation in science and engineering-oriented jobs would spur innovation and economic advances in all countries (OECD, 2007)**

Mission

- Expansion of the social infrastructure for women scientists and engineers
- Encouragement of R&D activities by facilitating information exchange
- Enhancement of the social status and rights of women scientists and engineers
- Strengthening of the relationship among women scientists and engineers

KWSE Membership (1993~2014)

- KWSE have experienced a remarkable growth within a short period of time (21 years)



- From September, 2013 to July, 2014
  47 new members:
  26 members with Ph.D. degrees & 10 Life Members

PROGRAMS RUN BY KWSE

Act on fostering and supporting women Scientists and Engineers in Korea

-2002.12
Legislation of the "Act on Fostering and Supporting Women Scientists and Engineers"

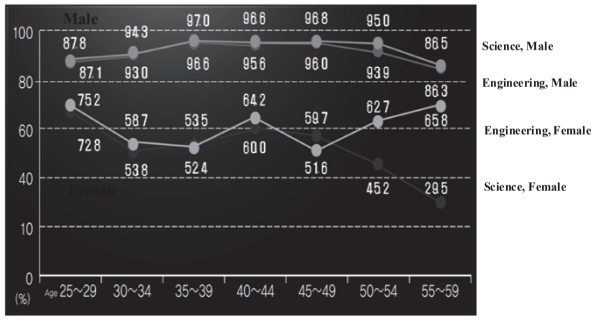
-2004.07
First Basic Plan for the "Act on Fostering and Supporting Women Scientists and Engineers" (2004~2006, Ministry of Science and Technology)

-2009.11
Second Basic Plan for the "Act on Fostering and Supporting Women Scientists and Engineers"
(2009-2013, Ministry of Education and Science Technology)

-2014.04
Third Basic Plan for the "Act on Fostering and Supporting Women Scientists and Engineers"
(2014-2018, Ministry of Science, ICT and Future Planning)

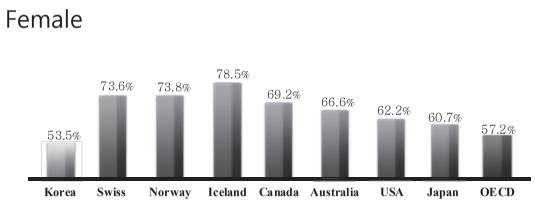
※ Third Basic Plan (2014), 『Global Networking』

Economic Participation Rate in Korea (1)



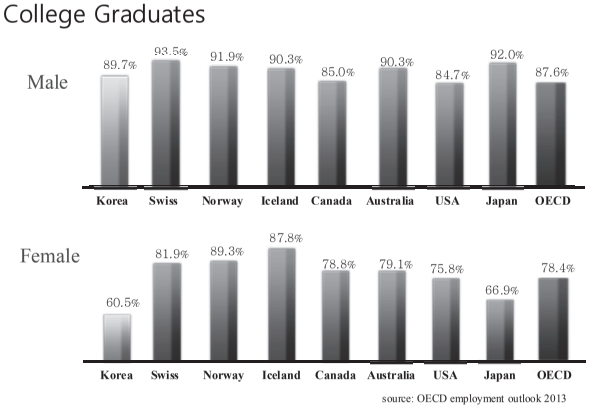
source : 2011 Report on Status of Women in Science and Technology, MEST

Economic Participation Rate in Korea (2)



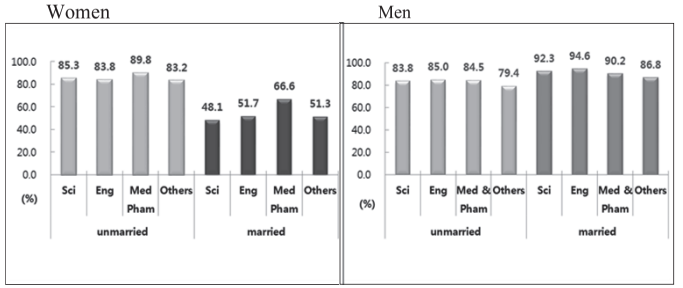
source: OECD employment outlook 2013

Economic Participation Rate in Korea (3)



source: OECD employment outlook 2013

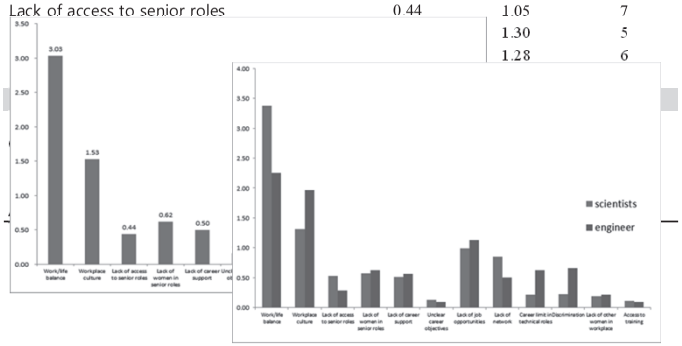
Economic Participation Rate in Korea (4)



Source : 2011 Report on Status of Women in Science and Technology, MEST

Most significant difficulties as a female science/engineering professional

	M	SD	순위
Work/life balance	3.03	2.20	1
Workplace culture	1.53	1.93	2
Lack of access to senior roles	0.44	1.05	7
		1.30	5
		1.28	6



1. An effective policy for gender equality in STEM professions is needed:
   - Economic Participation Rate of women in S&T in Korea is much lower than men; larger gap is observed in married women scientists in their

- **Korean women in STEM did not experience "extreme" gender inequality during their education. Yet, different perceptions among age groups or between scientists and engineers were observed.**
- **Top most difficulties Korean women faced were Work/Life Balance, Workplace Culture and Lack of Job Opportunities.**
- **Various policies on gender mainstreaming in STEM already exists in Korea: they just (?) need to be made more productive and workable .**

2. followed by workplace culture.

3. Action Plans to achieve gender equality in STEM in Korea showed that :
   - Programs for Education/Training/Mentoring need to include men.
   - Career Development and Retention programs need to be publicized from elementary school.

Issues?

- Discrimination
- Lack of opportunity
- Lack of access to higher education/knowledge
- Gender disparity in higher position
- Lack of network

What can we do?

- Woman Scientists & Engineers organization established;

  Japan, Taiwan, Australia, India, Malaysia, Korea

  Mongolia, Vietnam,

  Pakistan, Nepal, Sri Lanka

Acts on fostering and supporting women Scientists and Engineers

Korea
Japan
Taiwan

Malaysia
India
?

What needs to be done?

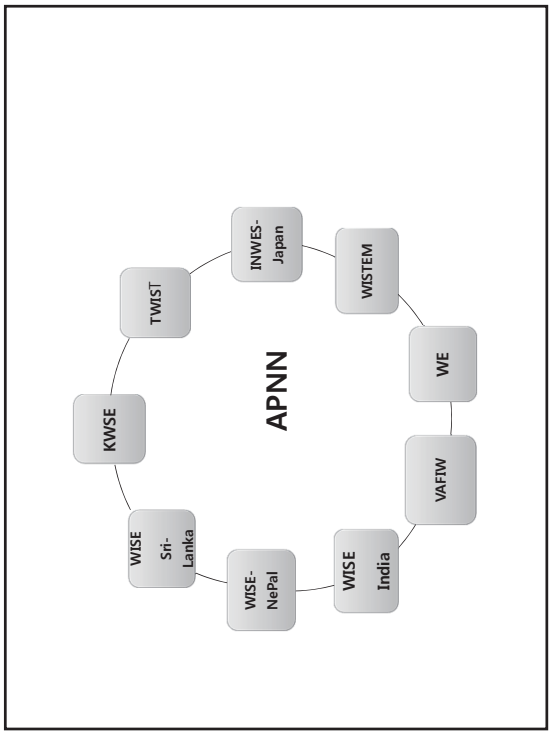
- Share each experience with other member country
- Draw common interest to change current issues on woman scientists and engineer
- Build closer network
- Help young generations to aware their role as society members who have responsibility to keep it healthy

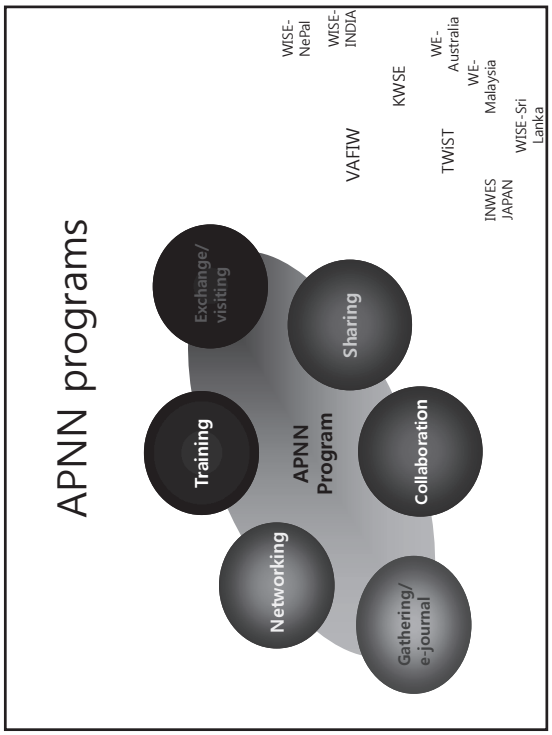
Building a data base of woman scientists & engineers of each country

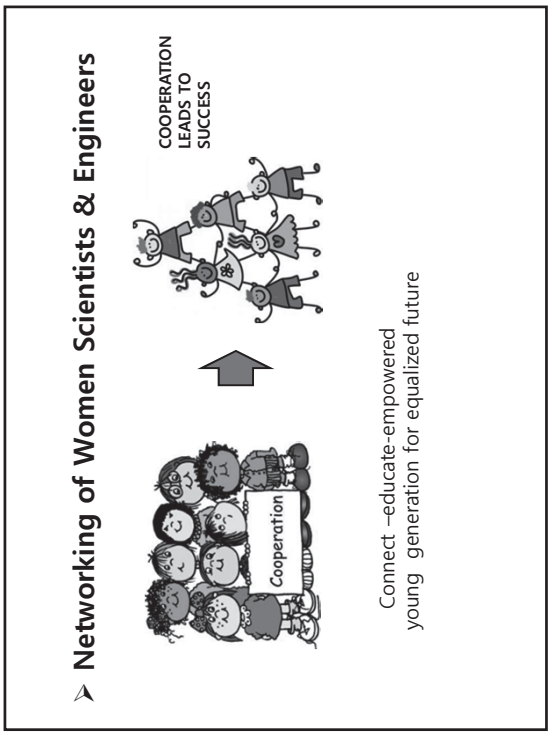
- Build each country's own woman scientists and engineer's data base
- Connect each data base
- Build easy access system to be connected.
- Maintain and revise by chair organization
- Frequent video communication
- Building a solid connection is a key way

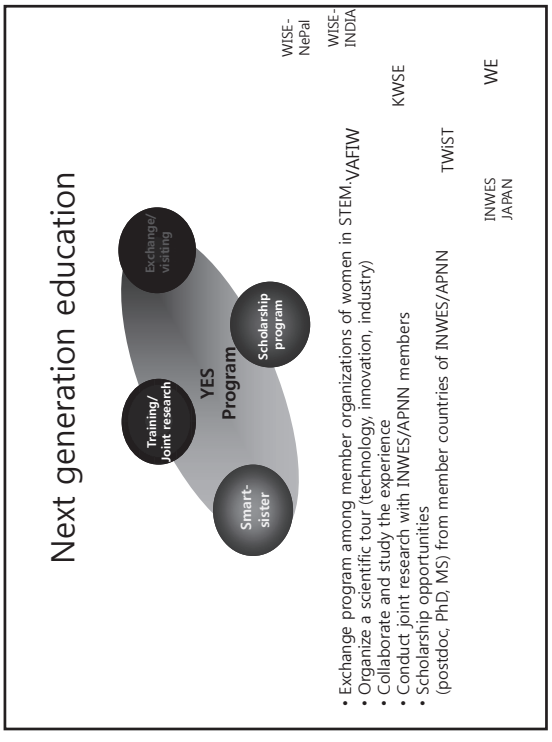
How to be more connected?

- Holding an annual meeting in face.
- Video conference/ skyp/internet/facebook
- Short-term visit
- Train & education/exchange
- Organize collaboration project on common issues such as
- I propose to have network mapping
- Designate Key holder for each network nod
- Encourage Seasonal gathering, visiting
- Establish working group to make p visiting program


APNN
INWES-Japan
WISTEM
WE
VAFIW
WISE India
WISE-NePal
WISE Sri-Lanka
KWSE
TWiST


APNN programs
Exchange/ visiting
Sharing
Training
APNN Program
Collaboration
Networking
Gathering/ e-journal
WISE-NePal
WISE-INDIA
VAFIW
KWSE
WE-Australia
TWiST
WE-Malaysia
INWES JAPAN
WISE-Sri Lanka


Networking of Women Scientists & Engineers
COOPERATION LEADS TO SUCCESS
Cooperation
Connect –educate-empowered
young generation for equalized future

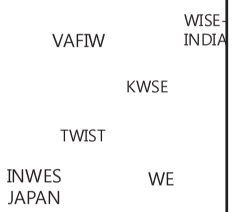

Next generation education
Exchange/ visiting
Training/ Joint research
YES Program
Scholarship program
Smart-sister
WISE-NePal
WISE-INDIA
VAFIW
KWSE
TWiST
INWES JAPAN
WE
• Exchange program among member organizations of women in STEM
• Organize a scientific tour (technology, innovation, industry)
• Collaborate and study the experience
• Conduct joint research with INWES/APNN members
• Scholarship opportunities
(postdoc, PhD, MS) from member countries of INWES/APNN

Action Plan

Working group

1. Exchange/visiting program development (WSTEM)
2. Empowering/education program development (KWSE)
3. Gathering program development (TWiST)
4. Gender equality/governmental act (WE-Malaysia and Vietnam)

Thank you !!!



Acknowledgement

All the APNN members presented last year.

- Marlene Kanga(Australia)
- Dillip Pattanaik (India)
- Ikoko Imoto (Japan)
- Hye-On Yoon (Korea)
- Jung Sun Kim (Korea)
- Rosaline Ganendra (Malaysia)
- Ariunbolor Purvee (Mongolia)
- Chia-Li Wu (Taiwan)
- Phan Thi Toi (Vietnam)
- Durdana Habib (Pakistan)
- Punyavana Vishaka Hidellage (Sri Lanka)
- Jun Hada (Nepal)

KWSE

APNN Special Talk

History, achievements, challenges and future of INWES

Kong-Joo Lee
President of INWES
Professor in College of Pharmacy, Ewha Womans University, Korea

The International Network of Women Engineers and Scientists (INWES) is an international network body serving as an NGO, a partner of the United Nations Education, Science and Cultural Organization (UNESCO). INWES was created with the vision “To build a better future worldwide, through the full and effective participation of women and girls in all aspects of Science, Technology, Engineering and Mathematics (STEM.)”.

INWES oversees the triennial ICWES conference, and the regional conferences in the two intervening years when there is no ICWES. The International Conference for Women Engineers and Scientists (ICWES) has been held almost every three years in various parts of the world for supporting Women in Engineering and Science since 1964.

One goal of INWES is to establish regional networks to foster and promote its activities in a physically close and similar time zone region, because they have common interests as well as regional problems that can be solved together. The Asia and Pacific Nation Network (APNN), was the first regional network established at ICWES15 (2011), held in Adelaide, Australia. Since then we have had three APNN meetings - in Kuala Lumpur Malaysia hosted by WISET in 2012, in Taipei Taiwan organized by Twist in 2013, in Seoul Korea by KWSE in 2014, and in Ulaanbaatar, Mongolia. The second regional network, African Regional Network (ARN) has been officially established during ICWES16 (2014), held in Los Angeles, USA, as a second regional network. These regional conferences and regional networks of INWES are specifically planned and organized to accommodate as many women scientists and engineers as possible and to provide venues so that they benefit from the international network.

We are going to share our experiences, our passions, times, energies and ideas and care for each other and learn from one another, which will empower us as Women Scientists and Engineers, and can contribute our energy to build better world in our society. We will discuss what the strategic plans are for this process. We look forward that we all will be inspired and have great and meaningful time by opening our hearts and reaching hands out.

Herstory, Achievements, Challenges and Future of INWES

To Build a better future worldwide

Kong-Joo Lee, Ph.D.
President, INWES
Professor, Ewha Womans University

INWES (International Network of Women Engineers and Scientists) is…….

A global network of women's organization

as an official NGO partner of the operational type with UNESCO

that support STEM (Science, Technology, Engineering and Mathematics)

Primary Objectives of INWES

- **To become an influential voice on STEM issues for the benefit of women, gender equity and society**
- **To increase the presence of women in mainstream STEM decision-making bodies**
- **To promote exchange of information, networking, advocacy and a wide range of global and regional projects**
- **To expand the opportunities for education and activities in STEM through the INWES**

Why INWES?

- **Needed a formal organization that overlooks ICWES (International Conference of Women Engineers and Scientist) conferences**
  - **ICWES is held every 3 years, since 1964**
- **The Science Agenda-Framework for Action, adopted by the World Conference on Science in the 21st C (July 1999), identified in article 90**

  "…special efforts should be made….to establish an international network of women scientists."
- **In order to develop a broader mandate and strengthen existing associations and networks**

Historical perspectives of INWES (1)

- In 1999, the WCS in Budapest (paragraph 90) recommended the creation of an international network of women in STEM.
- In 2001, a group of ICWES representatives from all around the world, and some potential partner organizations met in Merrickville.
- In 2002, at ICWES12, unanimously voted to create INWES.
- In 2003 (April), INWES was incorporated in Canada as a non-profit organization.
  - Interim Board organized and worked until first general meeting.
- In 2005, the first General meeting of members held & the first board of directors elected (Monique Frize became first President).

Historical perspectives of INWES (2)

- In 2007, the INWES ERI (Education and Research Institute) was formed
- In 2008, INWES became an official NGO partner of UNESCO of the operational type
- In 2008, the second board of directors elected (Sue Bird, 2nd President)
- In 2011, the third board of directors elected (Kong-Joo Lee, 3rd President)
- In 2011, the Asia and Pacific Nations Network (APNN) was initiated.
- In 2014, the fourth board of directors are elected (Kong-Joo Lee, 4th President)
- In 2014, the African Regional Network (ARN) was initiated.

Structure of INWES

INWES

Members: Organization (47), University (6), Cooperation, Individual (199) Honorary (11) (200,000 from 45 countries)
Board Members: 18 directors
Executive Committee: 7 officers
Advisory committee/ Running committee

Conferences:	**Regional Network:**	**Communication:**	**Program & Project:**
ICWES Regional conferences	APNN: Asia Pacific Nation ARN: Africa Regional	Newsletter/web portal **Bylaw:** Policy manual	Advocacy Education, mentoring etc.

Who can join INWES?

- Organisational Members: Not-for-profit organizations and associations supporting women in STEM
- Corporate Members: Businesses and corporations interested in or employing women in STEM
- Individual Members: Students or professionals interested or engaged in STEM
- University/Institute Members: Universities or educational institutes who teach and support women in STEM

The current INWES Board (2014~2017)

Executive Officers

President: Kong-Joo Lee (South Korea)
President: elect Liette Vasseur (Canada)
Treasurer: Joan Graf (USA)
Secretary General: Margaret Ajibode (UK)
Vice President: Gail G. Mattson (USA)
Vice President: Marlene Kanga (Australia)
Vice President: Roseni Dearden (UK)

Other Board Members

Aude Abena (Cameroon)
Claudia Bergbauer (German)
Rufina DABO SARR (Senegal)
Durdana Habib (Pakistan)
Seong Ok Han (South Korea)
Ewa Okon-Horodynska (Poland)
Yvette Ramos (Swiss)
Kayoko Sugahara (Japan)
Caroline Thoruwa (Kenya)
Sangeeta Wij (India)
Chia-Li Wu (Taiwan)

ACTIVITIES OF INWES

Executive and Board Meetings

Executive Meeting via Skype
2012: 6 times
2013: 6 times
2014: 5 times
2015: 3 times (ongoing)

Annual Board Meeting
2012: New Deli, India
2013: Saarbruken, Germany
2014: Los Angeles, USA
2015: Entebbe, Uganda (be expected)

2012 board meeting, New Deli, India

2013 board meeting, Germany

Conferences: ICWES

Since INWES overlooks ICWES (International Conference of Women Engineers and Scientists), every 3 years

ICWES 1 (1964) New York, U.S.A.
ICWES 2 (1967) Cambridge, U.K.
ICWES 3 (1971) Turin, Italy
ICWES 4 (1975) Cracow, Poland
ICWES 5 (1978) Rouen, France
ICWES 6 (1981) Bombay, India
ICWES 7 (1984) Washington DC, U.S.A.
ICWES 8 (1988) Abidjan, Ivory Coast
ICWES 9 (1991) Warwick, U.K.
ICWES 10 (1996) Budapest, Hungary
ICWES 11 (1999) Chiba, Japan
ICWES 12 (2002) Ottawa, Canada
ICWES 13 (2005) Seoul, Korea
ICWES 14 (2008) Lille, France
ICWES 15 (2011) Adelaide, Australia (Marlene Kanga)
ICWES 16 (2014.10.23-25) L.A., USA (Gail Mattson).
ICWES 17 (2017) India

ICWES 1
New York,
USA
1964

Journey of ICWES

Conferences: ICWES13, first INWES GM, 2005

Conferences: ICWES

ICWES14, Lille, France, 2008

ICWES15, Adelaide, Australia, 2011

Conferences: Regional Conference

2003 Regional Conference, Daejeon, Korea

2004 Regional Conference, Nairobi, Kenya

2006 Regional Conference, Lille, France

2007 Regional Conference, Wroclaw, Poland

2009 Regional Conference, Busan, Korea

2010 Regional Conference, Washington DC, U.S.A.

2012 Regional Conference, New Deli, India by Sangeeta Wij in India WISE

2013 Regional Conference, Nairobi, Kenya by Caroline in AWSE

2015 Regional Conference(21~23, Oct), Entebbe, Uganda

Regional Conferences

- Foster Regional Conference
  - 2012 and 2013 Regional Conference
  - Hold 2012, 2013 and 2014 INWES board meeting

2012 Regional meeting, New Deli, India

2013 Regional Conference, Nairobi, Kenya

Regional Networks : Objectives

- to increase INWES's outreach to different regions of the world.
- to promote the role and the status of Regional Organisations for Women in STEM to promote the interests of women in STEM in their regions.
- to support Women in those regions, notably by putting them in touch with the international community of women and other associations interested in STEM
- to exchange experiences and learn from one another
- to facilitate development of and cooperation in common projects in the region
- to help women who want to set up their own STEM associations

1st Regional Network: APNN

- 2008: Preparation Meeting, France
- 2009: Asian Network Workshop, Korea
- 2011: First General Meeting, Australia,
- 2012: Kuala Lumpur Malaysia hosted by WISET
- 2013: Taipei, Taiwan: by Chai Li Wu in TWIST
- 2014: Seoul, Korea: by Yoo HS and Han SO in KWSE
- 2015: Fifth General Meeting, Mongolia by WSTEM

Main Activities of APNN

- **Annual Meetings and Annual APNN Report printed and distributed to members**
- **Policy Manual in connection to the INWES by-law approved in September 2013 in Taiwan**
- **Start up of new organizations: TWiST (Taiwan), WSTEM (Mongolia), WISE-Sri Lanka, WISE-Nepal, and Vietnam**
- **APNN Young Women Scientists Camp**
- **Program and Project are going on gender Issue, Statistics of Asian countries**

- **1st Chair (2011-2014): HS Yoo of KWSE**
- **2nd Chair (2014-2017): G Sugahara in INWES Japan**

2013 KWSE/APNN YWSC: Photo Clips

Special Talk by Kong-Ju-Bock Lee

Tour of Ewha Womans Univ. Achieves

Group Discussion

Greetings by Kong-Joo Lee, INWES President

2nd INWES Regional Network: ARN

- Africa Regional Network (ARN) is established
- Preparation Meeting held at the regional conference in New Delhi, India in 2012
- Steering Committee Meeting via skype in 2014
- The first meeting was held in ICWES16 in 2014
- Collaborations

Okon Uduakobong, (APAGESTE, Nigeria)
Caroline Thoruwa, (AWSE, Kenya)
Rufina Dabo, (AFSTech, Senegal)

3rd INWES Regional Network: European Network (EN)

- Agree to establish INWES European Network
- Kick off meeting in Geneva, September 18-19, 2015
- Collaborations

Roseni Dearden, Margaret Ajibode (WES, UK)
Claudia Bergbauer (DIB, Germany)
Yvette Ramos (Swiss Engineering, Swiss)
Ewa OKON-Horodynska (Poland)
Monique Moutaud (Frence)

Communication

- **Activating communication : Website and Newsletter by Reseni Dearden, Jung Sun Kim**
  - **Re-construct INWES Website, Link to social networking service - http://www.inwes.org**
  - **Published 8 newsletters(2011~2014), 2 newsletters (2015, ongoing**



Bylaw and Nomination

Bylaw: by Liette Vasseur (Canada)
INWES in accordance with the new Corporation Act of Canada went through a bylaw change. We started to prepare the draft of the new bylaw from 2012, and finally the continuance agreement from the federal government was accepted in August, 2014, thanks to the efforts of Liette Vasseur, our Vice President.

Nomination: by Sue Bird (UK)
New board members will be elected in AGM at ICWES16. Sue Bird prepared new nomination forms and we asked for the nomination to new INWES board member on August 17, 2014 in website and e-mail to all members. At present, 22 members are nominated.

Fund Raising

Funding for INWES activities
UNESCO funding by Monique Moutaud (France) and Margaret Ajibode (UK):
The proposals were submitted and funded for 2013 regional conference in Nairobi, Kenya ($10,000) and for 2014 ICWES16 ($18,000)
Funding from Korean Government for International activities supported by Korean Government $ 50,000 for the INWES program through KWSE and supported the INWES Board meetings (2013, 2014) and ICWES16 by supporting INWES board members.
Funding from Samsung : They had supported the 2013 regional conference ($10,000) and support African travel awards for ICWES16 ($10,000).
Extra funding for ICWES and APNN were raised by each host organization

50th Celebration of ICWES

Preparation by Margaret Ajibode (UK), Jennifer Atchison (Germany) and Myung Hee Jung (Korea)
Archiving the ICWES documents with student interns, and interviewing the related personnels, and designing for presentations at ICWES16.

A few WES members in Ottawa

Plans for 2014~2017

- ◆ Activate regional networks (APNN, ARN, EN etc) and regional activities and organization set-up by collaborating inter-regional network
- ◆Finalize policy manual and procedures based on the new bylaw and support the each organization
- ◆ Support the many activities for young women in STEM including on-line mentoring on our website
- ◆ Expand the INWES activities collaborating with UNESCO
- ◆Activate the communication of INWES with members via website, SNS etc.
- ◆ Extend membership to South America and Middle East
- ◆ Fund raising for the activities by recruiting cooperation members

International Network of Women Engineers and Scientists

. . . building a better future worldwide

www.inwes.org

If you have any suggestions, please let us know

Thank you for your support

APNN Special Talk

The Society of Women Engineers – Challenges and Accomplishments

Gail G. Mattson, P.E., CHMM, PMP
Associate Laboratory Director, Environment Safety & Health
Brookhaven National Laboratory

In response the desire for professional recognition and to encourage more women to pursue careers in engineering, the Society of Women Engineers (SWE) was founded in 1950. Today SWE is one of the largest not-for-profit educational and service organizations in the world, with over 27,000 members and 400 member sections, that empowers women to succeed and advance in the field of engineering. SWE is the driving force that establishes engineering as a highly desirable career for women through an exciting array of training and development programs, networking opportunities, scholarships, and outreach and advocacy activities. This talk will include a brief history of SWE along with the challenges the early organizers had to overcome and major accomplishments.

THE SOCIETY OF WOMEN ENGINEERS

CHALLENGES AND ACCOMPLISHMENTS

Society of Women Engineers

The Society

FOUNDED IN 1950,

The driving force that establishes engineering as a highly desirable career aspiration for women. SWE empowers women to succeed and advance in those aspirations and receive the recognition and credit for their life-changing contributions and achievements as engineers and leaders.

Society of Women Engineers

SWE Structure

A multi-disciplinary educational and scientific 501(c)(3) membership organization representing all engineering and technology disciplines

100 professional sections

300+ collegiate sections

10 regions; Int'l Affiliates for the U.S. and Puerto Rico

34,000 total members (Women & Men, International, 50% College Students)

Society of Women Engineers

WHAT CAN MEMBERS EXPECT TO **GAIN FROM SWE?**

- Find **colleagues** with similar experiences
- Access to robust **professional development resources**
- Discover **best practices**
- Practice **new skills**
- Advance **their career**
- Be **inspired**
- Get **support**
- Give **back**

Society of Women Engineers

SWE PROGRAMS AND SERVICES

Society of Women Engineers

ASPIRE K-12 OUTREACH

SWE Outreach programs inspire the next generation of women engineers and technologists. We engage young girls in the possibilities of this rewarding career path with inspiring workshops and interaction with SWE role models.

Invent it. Build it.

WOW! That's Engineering!

4A CHANGE

swe NEXT

Society of Women Engineers

CHANGING THE CONVERSATION MESSAGING

- Part of "Be That Engineer" outreach brochure by the National Engineering Association
- Advocacy to change government policies and provide funding
- Providing media with information and stories about women in engineering

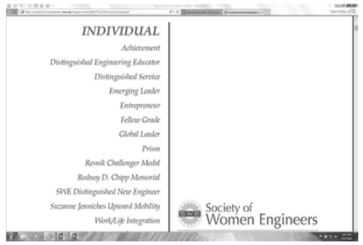
http://www.engineeringmessages.org

Society of Women Engineers

SWE AWARDS

SWE Awards celebrate the lifelong contributions women engineers and technologists make to our society—and our world.

- **Detailed requirements at swe.org/awards**
- **Awards for all career stages from high school graduates to Life time Achievement**
- **Widely advertised in the media**
- **Obtained corporate support**



Society of Women Engineers

SOCIETY LEVEL SCHOLARSHIP PROGRAM

Addresses "lack of financial resources" which is a major obstacle for women pursuing engineering degrees*

Funded by corporations, foundations and individuals

Supports undergraduate and graduate studies; along with those returning to complete degrees

In 2014, SWE awarded nationally over $727,300 in scholarships

*CAWMSET Study, September 2000, www.nsf.gov/od/cawmset/start.htm

Society of Women Engineers

SWE Magazine

- **Published 4 times/year** also available digitally
- **Career development** accomplishments of women in engineering
- **Technical themes of interest** to a broad range of engineering disciplines
- **Great content** for company intranet or affinity networks
- **2014 APEX Grand Award** Winner: Fall 2013 Issue, SWE also received 3 Awards of Excellence

Society of Women Engineers

Add the *SWE Magazine* App to your Mobile World

Download the *SWE Magazine* mobile app today to access this award–winning publication's premier content from the palm of your hand.

App Store

Google Play

Available on the App Store

Get it on Google play

Learn more by visiting **swe.org/magazine**

Society of Women Engineers

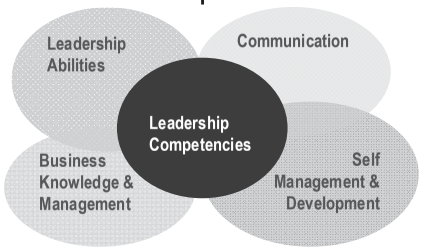
SWE E-Books

We asked SWE members for their stories and words of inspiration.

Read what some of the top women engineers in their field have to say about taking risks, creating change, being a leader, creating balance in your life and other inspiring topics.

Now Available in Print and for Kindle at amazon.com

SWE Advance Philosophy:
Leadership Competency Model for Professional Development



Society of Women Engineers

Professional Development:

A BLENDED APPROACH

- Online learning through Webinars, Modules, Blogs and Podcasts, Virtual Conference/Session Recordings
- In-person learning through SWE's Annual Conference (Workshops, Panels, Lectures and Executive Summit), Executive Education Programs, Regional Conferences and Section activities
- Practice what you learn through volunteer and leadership opportunities at the section, regional and society level

Society of Women Engineers

SWE Advance

Upcoming Webinars:

- Give Me the Data: Getting Engineers Talking About Unconscious Bias
- Transforming your STEM Career
- From Confrontation to Collaboration: Reframing our View of Conflict

2015 Online Conference (recordings available)

- Cross Cultural Competence - Key Learnings on How to Work With and Appreciate Other Cultures in the Workplace

SWE approved as IACET authorized provider of Continuing Education units (CEUs) for professional certifications

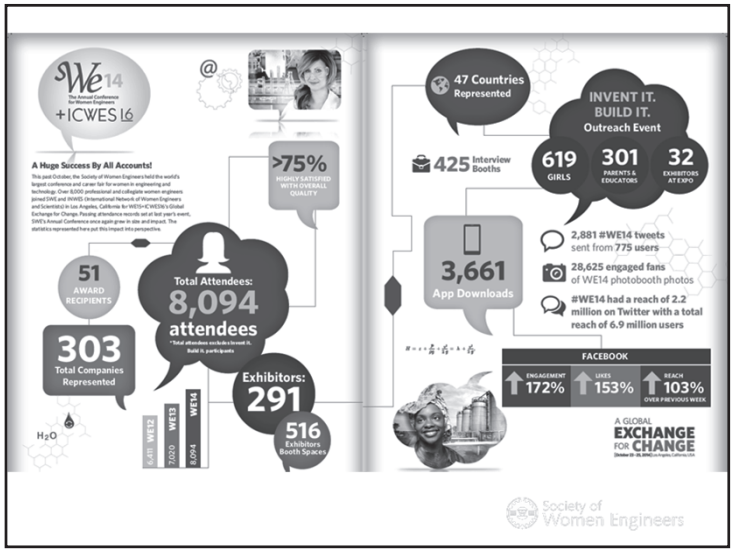
Society of Women Engineers

SWE CONFERENCES

ANNUAL CONFERENCE IN THE FALL~ 8,000 ATTENDEES

10 REGIONAL CONFERENCES IN THE SPRING ~ 100 - 500 ATTENDEES

Society of Women Engineers



Society of Women Engineers

KEY COMPONENTS OF SUCCESS

- ✓ Initial focus on professional development for women in STEM
- ✓ Established SWE sections at engineering universities
- ✓ Quickly developed STEM outreach programs for girls
- ✓ Effective recognition and communications is essential – awards, website, newsletter, magazine, social media, etc.
- ✓ Strategic Planning – identify mission, outline goals and actions
- ✓ Advocacy for changes in public policy – provide a voice in government
- ✓ Collaborate with organizations with similar goals to maximize resources and impact
- ✓ Apply for grants from government programs and foundations
- ✓ Establish partnerships with corporations that want diversity in their workforce

Society of Women Engineers

THE SOCIETY OF WOMEN ENGINEERS

Gail Mattson
INWES VP Conferences
SWE National President, 2000-2001
gail.mattson@swe.org
865.719.9127

Karen Horting
Executive Director & CEO
karen.horting@swe.org
312.596.5216

Society of Women Engineers

Country Report 2015

Australia

(Engineers Australia)

1-3-1 2015 APNN Country Report of AUSTRALIA

Name of country		
Organization representing your country	Official Name	Engineers Australia
	Address	11 National Circuit, Barton, ACT 2600
	Homepage	www.engineersaustralia.org.au
	Telephone no.	
	Members	100,000 (men and women)
	Main activities	Professional association for engineers
	Goals/Other information	A forum for the engineering profession in Australia.
Representative of Organization	Name	Dr. Marlene Kanga
	Affiliation & Address	19 Elgin Street, Gordon NSW 2072 Australia
	E-mail	marlenekanga@bigpond.com
Names of other organizations for women in S&T in your country		Science and Technology Australia Professionals Australia Women on Boards Chief Executive Women

1. Current Status in network of women engineers and scientists

Occupational research for Australia shows that women's share of occupations in science, engineering and information technology continues to be low. There is no significant change from year to year.

Labour force participation by women engineers in Australia continues to be low and is 11.5% of total employed engineers in the Australian census, 2011. This percent of women engineers in the membership of Engineers Australia is 10.4% AT 30 June 2014, as shown below:

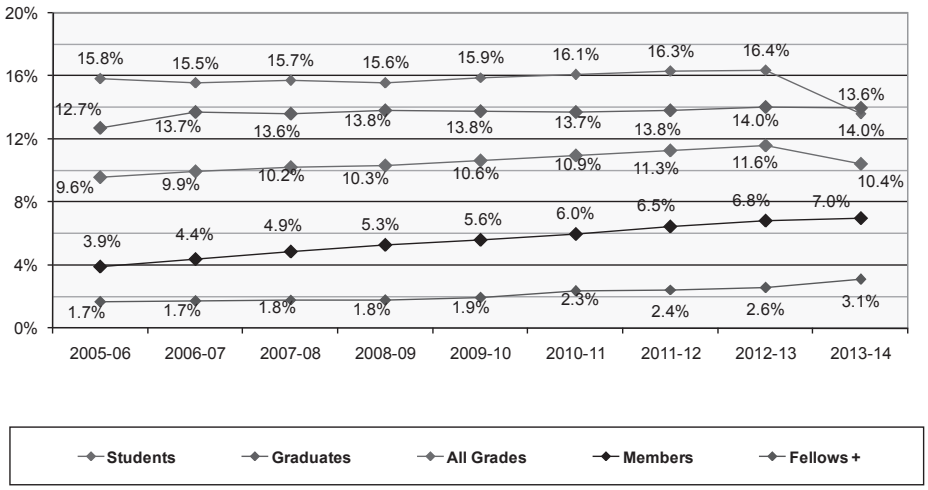


Figure 1: Women members of Engineers Australia by member grade

Source: Engineers Australia Membership Statistics, June 2014, unpublished

2. Best practices of networking of women engineers and scientists in your country

Various organisations in science and engineering have conducted surveys and produced reports on the need for more women in science, engineering and technology. The current practices including networking events, mentoring programs, publication of best practices in industry to support diversity.

Some best practices in Australia are in organisations which are addressing the gender diversity issue across all professions and include:

- **Women on Boards,** a privately owned company that is advocates for more women in leadership positions and on boards. It advocates for all professions including science, technology and engineering.

  See: www.womenonboards.org.au

- **Chief Executive Women** – is a network of women chief executives and other senior leaders who provide mentoring and support through scholarships to younger women. They also have an important advocacy role.

  See: www.cew.org.au

- **Westpac Women of Influence** – was launched in 2012 and seeks to make the achievements of women in all fields known to a wider audience. It is funded jointly by Westpac Banking Corporation, a major banking group in Australia and Fairfax Media, a major newspaper group in Australia.

  See: http://www.100womenofinfluence.com.au

- **Human Rights Commission Male Champions for Change** – consists of male and female chief executives who advocate for greater diversity in Australian workplaces.

  See: www.humanrights.gov.au

- **Workplace Gender Equality Agency** – is a government funded agency which requires mandatory reporting of diversity indicators for organisations in Australia with more than 100 employees. Employers who provide additional information voluntarily relating to their support for gender equity can be listed as Employers of Choice.

  See: www.wgea.gov.au

3. Suggestion for future network in your country or all over the world

It is important that a strategic approach is taken by oragnsiations wanting to change the culture and increase the partiapoction of women in science and engineering. I have developed a strategy for increasing diversity in engineering and science workplaces and which is supported by engineering and science institutions in Australia, the Asian region and internationally. It is important that the strategy is promoted widely to encourage adoption by Australian companies. The strategy is available from the following link:

www.engineersaustralia.org.au/about-us/research-and-reports

4. Detailed information of members

Due to privacy laws in Australia, personal information cannot be provided. However organisations with relevant information can be contacted from the above web sites.

Dr. Marlene Kanga AM Hon FIEAust Hon FIChemE FTSE CPEng

National President Engineers Australia, 2013

Board member, INWES

Country Report 2015

India
Women in Science and Engineering in India
(WISE India)

2015 APNN Country Report of India

Name of Country	India	
Organization representing your country	**Official Name**	Women in Science and Engineering (WISE India)
	Address	H-333,New Rajinder Nagar, New Delhi 110060
	Homepage	http://www.wiseindia.org
	Telephone no.	+91-9439830805
	Members	300 +
	Main activities	The scarcity of women in science and engineering (more prominently at the managerial level) is a matter of concern in most of the countries especially so in India. The small number of women receiving degrees in the sciences and engineering translates to an even smaller percentage of women at top and middle level of management in science and engineering fields. WISE INDIA aims to spread a message of awareness about the strengths and success stories of women engineers and see that their contributions are duly recognized in Society. We shall endeavor to achieve our goals through following activities: ✓ Create a **Data Bank** of Women Scientists and Engineers in India ✓ **Encourage Girl Child** to take up Engineering and Science as a preferred career choice ✓ Organize **Seminars** to enhance Leadership and technical skills ✓ **Encourage Participation** of Women Scientists and Engineers in National and International Seminars ✓ Give **awards** to commend the outstanding work done by women Engineers and Scientists ✓ **Interaction with Industry** to support recruitment and retention of Women Engineers & scientists ✓ **Mentoring and providing support** to women who have taken temporary break from their career and bring them back to mainstream ✓ **Promoting exchange of information, networking, advocacy of projects** among women engineers and scientists ✓ **Encourage Participation** of Women Scientists and Engineers in National and International

		Seminars ✓ **Promoting exchange of information, networking, advocacy of projects** among women engineers and scientists
	Goals/other information	WISE is a registered society under the Indian Registration Act of 1860. **Vision:** To build better prospects for women in science and engineering through their active participation and involvement **Mission:** • WISE–India aims to create career opportunities for women by increasing awareness, providing support, enhancing capacity building and by influencing policies for promoting women in the field of science and engineering. • WISE–India also provides a platform for dissemination and sharing of knowledge, mentoring, professional development and networking opportunities to facilitate the success of women in the science and engineering related fields.
Representative of Organization	Name	Dillip Pattanaik
	Affiliation & Address	Vice President Head Office: H-333,New Rajinder Nagar, New Delhi 110060 Personal Address: 502/1, Lane-9, Mallick Complex, Jagamara, Jagamara, Bhubaneswar 751030, Orissa, India
	E-mail	dillip.pattanaik@wiseindia.,org
Names of other organizations for women in your country		Indian Women in Science and Engineering (iWiSE)

1. Current Status in network of women engineers and scientists since last year

Women in Science and Engineering in India have improved considerably from June 2014 to April 2015. This can be seen significantly in its yearly growth, Women in Engineering has seen a growth of 7 percent since 2010 and Women in science has grown remarkably. This growth supports the major development of women in the workforce industry in India. However, the women's participation in mathematics has not achieved considerable growth in past years. The Government of India through its various transformation program included an agenda to increase number of skilled women in the workforce.

Among the major developments that are taking place in India to encourage more women in science, engineering, mathematics and technology are as follows:

(a) Department of Science and Technology, Govt. of India:

The "Women Scientists Scheme" has been evolved in this context, by the Department of Science and Technology (DST), Govt. of India for providing opportunities to women scientists and technologists between the age group of 30-50 years who desire to return to mainstream science and work as bench-level scientists. Through this endeavour of the Department, a concerted effort would be made to give women a strong foothold into the scientific profession, help them re-enter into the mainstream and provide a launch pad for further forays into the field of science and technology, both from the point of view of pure science and its application to societal development. Under this scheme, women scientists are being encouraged to pursue research in frontier areas of science and engineering, on problems of societal relevance and to take up S&T-based internship followed by self-employment.

(b) Proactive Gender Enabling Schemes by Govt. of India:

The Scheme of Universalisation of Women Helpline is intended to provide 24 hours immediate and emergency response to women affected by violence through referral (linking with appropriate authority such as police, One Stop Centre, hospital) and information about women related government schemes programs across the country through a single uniform number. Women Helpline (WHL) has been integrated with One Stop Centre Scheme (OSC) under which one OSC shall be established in every State/UT to provide integrated support and assistance to women affected by violence, both in private and public spaces under one roof. Women affected by violence and in need of redressal services will be referred to OSC through WHL.

The objectives of the Scheme are (a) To provide toll-free 24-hours telecom service to

women affected by violence seeking support and information, (b) To facilitate crisis and non-crisis intervention through referral to the appropriate agencies such as police/Hospitals/Ambulance services/District Legal Service Authority (DLSA)/Protection Officer (PO)/OSC, (c) To provide information about the appropriate support services, government schemes and programs available to the woman affected by violence, in her particular situation within the local area in which she resides or is employed.

(c) New Initiatives of the Department of Science and Technology:

- **Science and Engineering Research Board** (SERB) has intensified its activities for human capacity building through science and engineering research. Besides supporting individual scientist centric R&D projects through 19 programme advisory committees, the Board has launched several new initiatives during the year viz. Empowerment and Equity opportunities for Excellence in Science for enhancing participation of scientists from the weaker sections of the society; SERB Women Excellence Award to enroll large number of women into S&T activities; SERB Distinguished Fellowship Scheme.
- **National Programme on Educational Neuroscience** under which a new co-ordinated project has been supported on 'Development and validation of screening tool to identify Learning Disability (Teacher Administered Screening Tool)' in top-down approach. This is a multidisciplinary programme to address and understand the cognitive deficits of Learning Disabilities.
- **Training Programme on "Geomatics: Technology and Applications" for Women Scientists:** This training programme is based on the 'geomatics technologies' which have logically proved more accurate, scientific, unbiased and multi-disciplinary, thus allowing the decision making process in any area to be more effective and efficient. Therefore, it has immense importance in value addition of research result analysis and in policy making

2. <u>Best practices of networking of women engineers and scientists in your country</u>

The women network is all about growth. In the era of transformation, the needs of successful networking are to be more binding and diverse in transforming our nation towards greater heights. The best practices of networking of women engineers and scientists starts with diversity and attributes which women apply in their daily life that has made positive contribution to the work force of the nation. This contribution has merged a group of successful network of women engineers, scientists and academicians.

In India, the concept of networking of women scientists and engineers are seen wth professional institutions and bodies:

a) **Consolidation of University Research for Innovation and Excellence in**

Women Universities (CURIE) of Department of Science and Technology of Govt. of India: Department is providing support for six Women Universities in India under CURIE program. A visible impact of CURIE has been noticed on development of research facilities and infrastructure, human resource development and on the quality of research output in these universities. This has paved the way for 2ndPhase of CURIE Program for additional support in these Universities. Networking of CURIE Beneficiaries, Inception of CURIE has met with remarkable success as through CURIE support various State-of-the-art facilities have been established in supported women universities. The 'Networking Concept' has been introduced among CURIE beneficiaries to utilize these facilities and expertise of a particular university.

b) **The Institutions of Engineers in India:** In order to fulfil its basic objective through synthesizing an amalgam of academic and practical expertise, the Institution has grouped its members into several 'Engineering Divisions' according to the discipline of their expertise. These Divisions have the mandate to devote their efforts, individually or jointly with one or more other Divisions, towards search for new knowledge and product technologies within their respective or an inter-disciplinary domain. These Divisions are directed to take active steps to establish a close liaison between the Institution, its members and the policy-makers. In order to broaden and strengthen the services of the Institution to the technical community and to the public as well, these Divisions are also directed to actively encourage research and developmental programs through various promotional aids, such as Lectures, Seminars, Symposia, Workshops and other educational programs of the like and also the publications aimed at the dissemination of research results, in addition to extending technical consultancy and advisory services.

3. Suggestion for future network in your country or all over the world

The existing of networks in our country would benefit by having collaborative effort and relationship with other likeminded women, women groups, networks, alliances, government institutions, departments, industries, and corporate etc that have successfully grown to have a large representation. Especially regional networks are likely to succeed as countries in a region that tend to have similar traditions and cultural values. This may be helpful to learn through collaborative efforts which policies result in improving women participation in science, engineering and technology sectors. Following collaborative activities might prove helpful:

a. Organizing workshops, seminars and expert consultations to help formulate fruitful policies.

b. Series of lecture series to inspire young mentors.

c. Set up state level networks to have a wider presence through out the country.

4. Detailed information of members

: This information could be helpful when women engineers and scientists want to collaborate with someone working in specific areas.Providing an email address is optional.

	Name	Work/research area	Affiliation	Email (optional)
1	Sangeeta Wij	Consulting, Civil	President, WISE India	sangeeta.wij@wiseindia.org
2	Dillip Pattanaik	Climate Change, DRR, Rural Infrastructure	Vice President	dillip.pattanaik@wiseindia.org
3	Seema Singh	Research & Development	Vice President	seema.singh@wiseindia.org
4	Chhavi Sadan	Structural Engineer	Secretary	chhavi.sadan@wiseindia.org
5	Arushi Kumar	Consultant	Treasurer	arushi.kumar90@gmail.com
6	Kamini Gupta	Rural Road and Transport	Board Member	kamini.gupta@wiseindia.org
7	Rahul Gaba	Energy	Board Member	rahul.gaba@wiseindia.org
8	Nilanjana Rao	Environment	Board Member	nilanjana.rao@wiseindia.org
9	Prerna Sohal	Bridge, Civil	Board Member	prerna.sohal@wiseindia.org
10	Niharika Taneja	Civil	Board Member	neeharikataneja@gmail.com

Country Report 2015

Japan

Japan Network of Women Engineers and Scientists (JNWES)

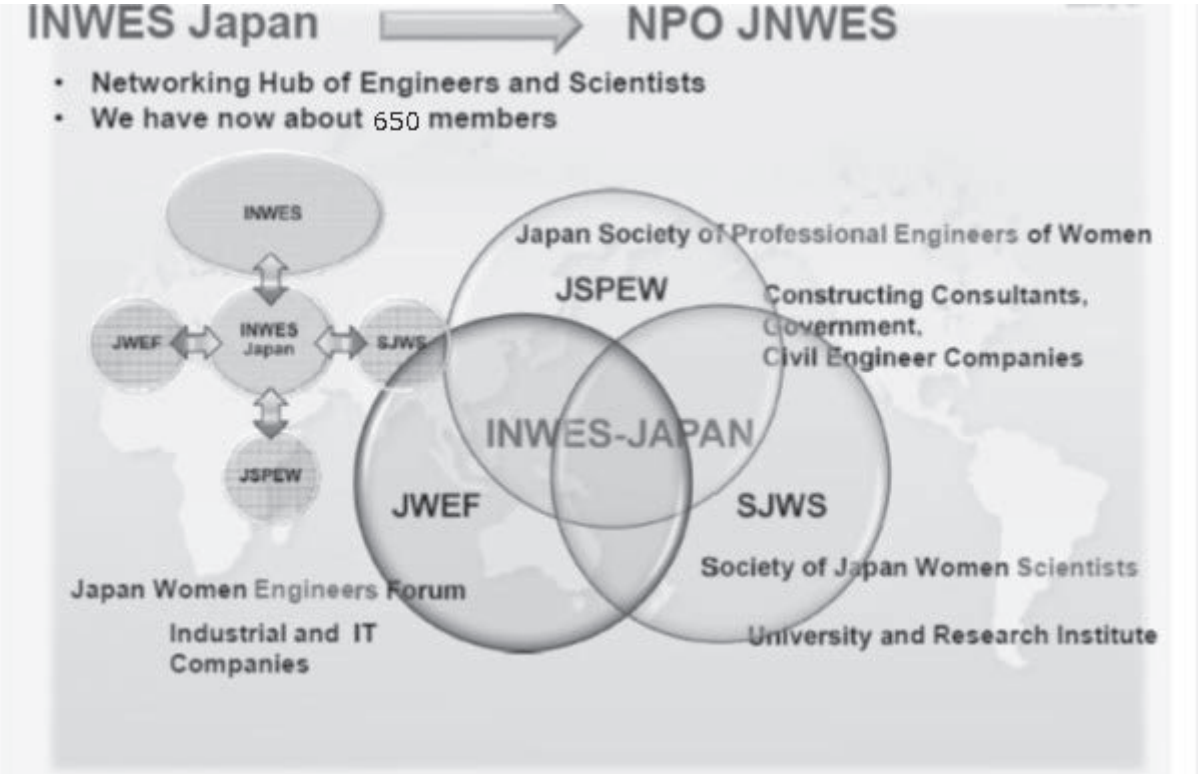
2015 APNN Country Report of Japan

Name of Country	Japan	
Organization representing your country	Official Name	INWES-Japan
	Address	Sakae Sekkei Co.,Ltd. ATTN: Ryo Kimura 35-13 2-chome, Kamiogi, Suginami-ku, Tokyo 167-0043 Japan
	Homepage	http://www.inwes-japan.org/
	Telephone no.	+81-3-3396-8141 +81-3-3394-9318
	Members	Japan Women Engineering Forum (JWEF:150) The Japan Society for Professional Engineers of Women (JSPEW:150) The Society of Japanese Women Scientists (SJWS:350)
	Main activities	Promoting domestic and international network of women engineers and scientists. Encouragement of women students and young women to study and work in science and engineers area.
	Goals/other information	Achievement of diversity in engineer and science area.
Representative of Organization	Name	Kayoko Sugahara
	Affiliation & Address	President of INWES Japan Visiting Professor of Tokyo University of Agriculture and Technology Japan Aerospace Exploration Agency(JAXA) Gender Equality Office, Advisor
	E-mail	The Society of Japanese Women Scientists
Names of other organizations for women in your country		Japan Women's Innovative Network (J-Win)

1. Current Status in network of women engineers and scientists since last year

We INWES-Japan are applying for setting up an incorporated non-profit organizatio n, which is composed of three organizations and also are prepare to change the organizat ion 's name ". Japan Network of Women Engineers and Scientists (JNWES)"

By this consortium we have more effective and corresponding network of women scientists and engineers.



- ✧ JWEF (Japan Women Engineer Forum) – 150 members
- ✧ JSPEW (The Japan Society for Professional Engineers of Women) – 150 members
- ✧ SJWS (The Society of Japanese Women Scientists) – 350members

Fig-1. JNWES and 3 constituent organizations.

2. Best practices of networking of women engineers and scientists in your country

1) Consortium of scientists and engineers

As described in former section, we must mention first, consortium of the three

organizations. INWES-Japan has accomplished a network of scientists and engineers, in a true sense, now.

2) ICWES16 in Los Angeles

“WE14+ICWES16, International Conference of Women Engineers and Scientist s” was held in from 23 October, 2014 to 25 October, 2014, Los Angeles. WE14+I CWES16 was the special Conference that covered the topics of Technology, E ngineering, Science and Women Engineers and more. The total number of part icipants were expecting to get involved in this Conference was almost 8000.

We had a workshop, as of “Let's go listen to the real intention of working women engineers”. The total number of participants in this Panel discussion w as over 110. We shared our worries about “work life valance”.

Fig-2 “Let's go listen to the real intention of working women engineers”

3) Japan-China-Korea Women Leaders Forum for Science &Technology

"The 6th Japan-China-Korea Women Leaders Forum for Science and Technology" was held in Aug. 19, 2014 , Tong Liao, Inner Mongolia ″Women, Environment and Livelihood“ in China. This event was hosted by Hosted by CWAST (China Women’s Association of Science and Technology) and co-Chair by KOFST(Korea Federation of Women’s Science&Technology Associations, INWES Japan.

The main theme of 6th Forum was “Women, Environment and Livelihood ".

We had three sessions, as of “Women Empowerment”, “Women & Sustainable Livelihood” and “Science for Environment & Development”. We shared our experiences, our passion, energies and ideas.

4)Junior and High School Girls Student Summer Camp (Aug, 2014) ; by NWEC (National Women's Education Center) and JST(Japan Science and Technology Agency)

JWEF, JSPEW and SJWS held presentations respectively. In this camp called 130 girl student from all over Japan, in the subject "Encounter - with science, a technique, the person".

3. Suggestion for future network in your country or all over the world

1) Policy and actions.

Approved by the Cabinet in June 2003, the goal of Japanese diversity was set Proportion of women in leadership positions becomes about 30% at least, in all sectors of society, in 2020".

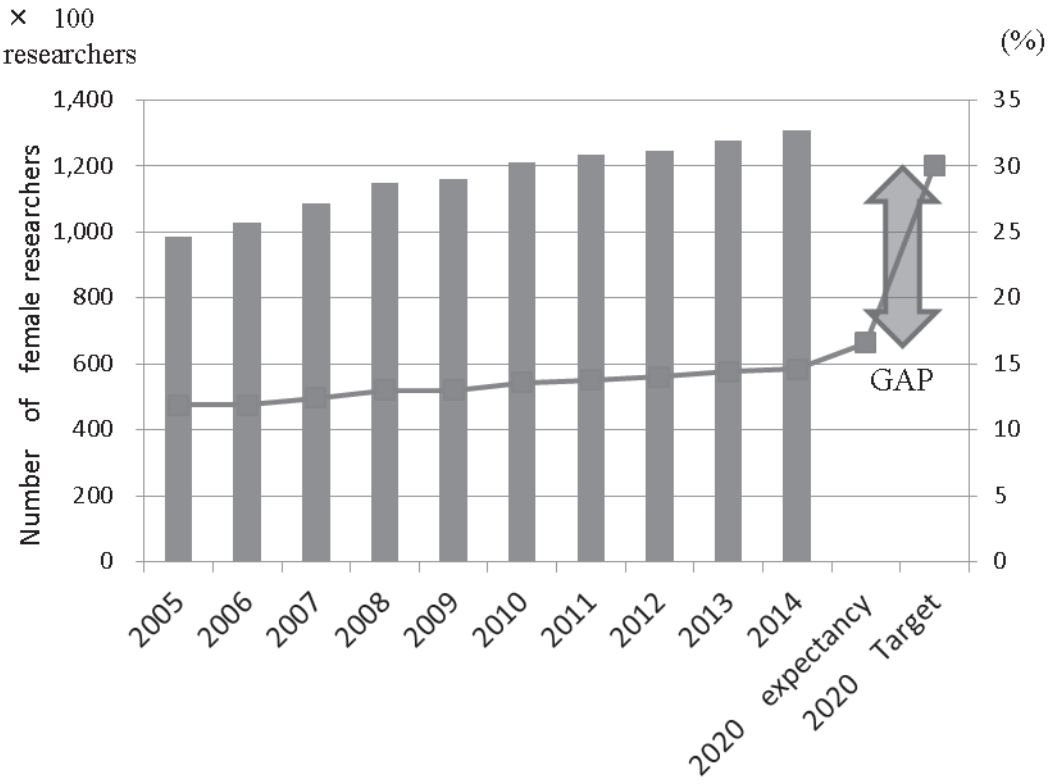


Fig-3 Trendline for number and percentage of female researchers

Created based on Report on the survey R&D (Labour Force Survey by the Statistics Bureau of the Ministry of Internal Affairs and Communications) (MEXT 2015)

As, shown in the Fig-3 it is not easy to accomplish 30% of female researchers, in 2020 because . But the number is growing steadily.

2) Positive action.(Gender Equality Bureau Cabinet Office)

Gender Equality Bureau Cabinet Office proposed a Positive Action to promote gender equality in 4 areas, which are politics, government services, technology and research, and employment, (Feb 2014)

- technology and research(universities and research institute);
- Promotion of the setting specific goals

- Publication of specific examples of successful research institute
- Publication of successful researches
- Create an environment for the participation of female researchers
- Placement of support coordinator, during childbirth and child care.
- Support the efforts of environmental improvement
- Environmental improvement to continue the research, such as flexibility of performance evaluation.
- Employment (company)
- Promotion of the setting of specific goals in the company
- Publication and Information of positively evaluated company by the award
- Promotion of diversity measures to companies through public contract.

2) INWES-Japan

We INWES-japan will continue the program to have more women in STEM area in future by supporting girls and young women.

- Support Activities for STEM girls :

Seminar for high school student.

Technical salon for women students (by Japan Society of Professional Engineers)

Roll Model Café.

- Learning

Seminars and tours.

- Publication and Contribution of role models of women.

Contribute essays to papers and magazines.

Publication of a booklet; Portfolio of the women professional engineers.(JSPEW)

Award

Award distinguished service award and incentive awards to women scientists.

3)Education, Culture, Sports, Science and Technology “School Basic Survey 2005”

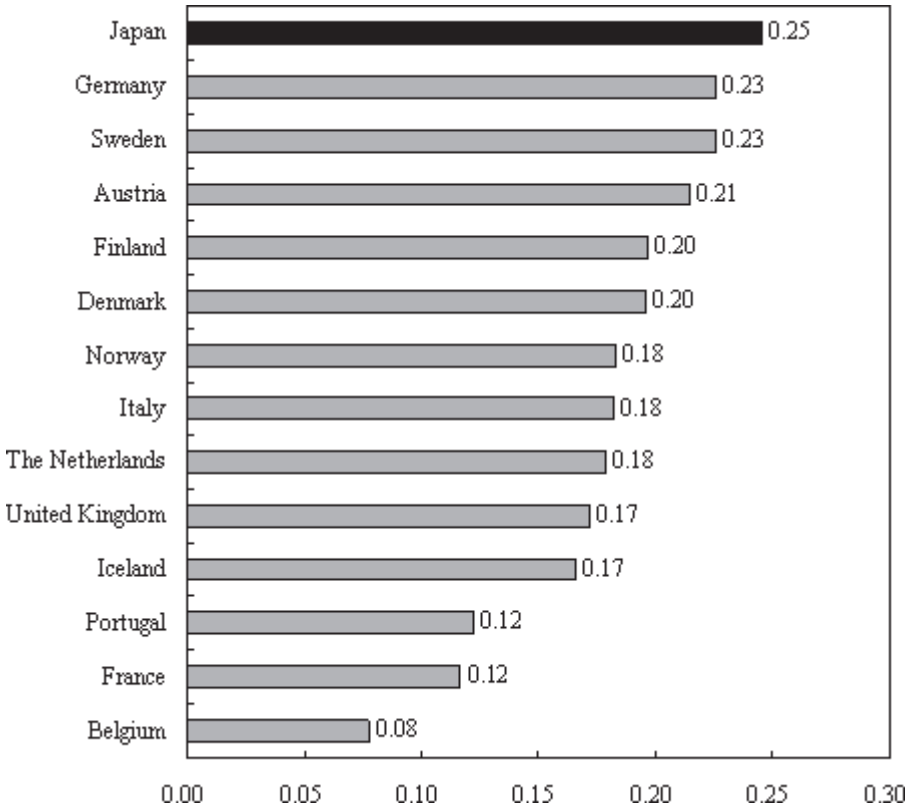


Fig-4 Difference between males and females in specialty fields（international comparison）

Calculated using the following formula using the number of researchers in the higher education sector in each country

Dissimilarity Index＝0.5*∑｜（Fi/F）-（Mi/M）｜

i：Field（physics, engineering, agriculture, health, social science, humanities, and others）

Fi：number of female researchers in field i, F: Total number of female researchers in all fields

Mi：number of male researchers in field i, M: Total number of male researchers in all fields

Source：

For Japan, Statistics Bureau “Report on the Survey of Research and Development”（2005）

For other countries, European Commission “She Figures 2003”

As this shows, not only is the percentage of female researchers in Japan low, there is also a big gap in promotion and in fields of specialization between men and women. A questionnaire was conducted on researchers to ask the reasons for the small number of females. Most respondents indicated family circumstances, such as child birth, child care and home care for relatives. It is thought to be difficult to handle both this kind of family responsibility and the responsibilities of research work. The answers from female researchers indicate that many feel that females are at a disadvantage regarding evaluations, promotions and assignments（Fig-4）.

As a result, a variety of measures will be implemented to promote the activity of female researchers through the Third Science and Technology Basic Plan.

First, with regard to the granting of competitive funding, there should be expansion of measures that consider the balancing of conducting research and childbirth/child-rearing, etc., such as allowing for term extensions and interruptions for fixed periods for the purpose of childbirth and child-rearing.

Furthermore, universities and public research institutions are required to implement not only steps to improve the environment but also activities including awareness-raising by supporting the balance between research and child birth/rearing in the action plans to be formulated and implemented based on the Law for Measures to Support the Development of the Next Generation. The

Government will provide support for research institutions implementing efforts that others should follow. It is also expected to actively recruit females in terms of hiring, promotion and participation in policy bodies through the setting of a numerical target for the recruitment of female researchers at each institution. （The prospective recruitment target for female researchers in the natural science field is 25%.）

In addition, since there is already a large drop in the percentage of females that continue their education at the university level, there will also be efforts to increase interest and curiosity in young female students and children.

Source：

"Survey of the State of Japan's Research Activities"（2005) Ministry of Education, Culture, Sports, Science and Technology

White paper on Science and Technology; (2006）) Ministry of Education, Culture, Sports, Science and Technology

4. Detailed information of members:

This information could be helpful when women engineers and scientists want to collaborate with someone working in specific areas. Providing an email address is optional.

	Name	Work/research area	Affiliation	Email (optional)
1	Kayoko Sugahara		Tokyo University of Agriculture and Technology Japan Aerospace Exploration Agency(JAXA) Gender Equality Office,	sugahara0@gmail.com
2	Toyoko Imae	professor/ chemistry	National Taiwan University of Science and Technology	imae@mail.ntust.edu.tw
3	Ikuko Imoto	Landscape Architecture, Nature Conservation	the Geoecological Conservation Network Keio Research Institute at SFC	imoto@geo-eco.net
4	Toshie Kondoh	Molecular Oncology, In vivo imaging	Tokyo Institute of Technology	skondoh@bio.titech.ac.jp
5	Ryo Kimura	Architecture, Landscape Architecture	Sakae Sekkei.Co.Ltd	
6	Nami Kubo	Urban & Regional Planning	PASCO Corporation	nabmu3604@pasco.co.jp
7	Aguri Nakano	Professor/ Electronics	Japan Organization for Employment of the Elderly, Persons with Disabilities and Job Seekers	Nakano.Aguri@jeed.or.jp
8	Kumi Nitta	Electrical Engineering Hypervelocity Impact	Japan Aerospace Exploration Agency (JAXA)	Nitta.kumi@jaxa.jp
9	Rie Yamaguchi			
10	Noriko Matsuda			

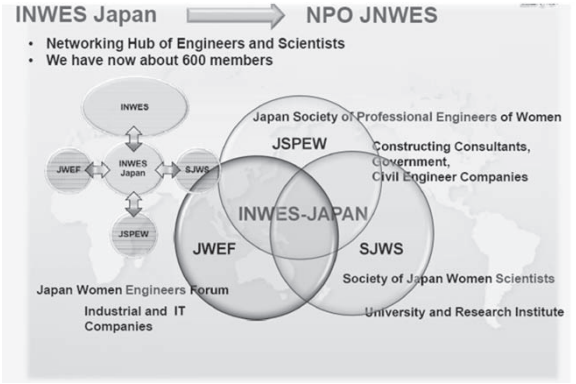
* Japan Country Report

Japan Network of Women Engineers and Scientists (JNWES)

Former INWES-Japan

(International Network of Women Engineers and Scientists in Japan)

1 Current Status in network of women engineers and scientists since last year



- ✧ *JWEF (Japan Women Engineer Forum) – 150 members*
- ✧ *JSPEW (The Japan Society for Professional Engineers of Women) – 150 members*
- ✧ *SJWS (The Society of Japanese Women Scientists) – 350members*

2 Best practices of networking of women engineers and scientists in Japan

1) Consortium of scientists and engineers

JNWES has accomplished a network of scientists and engineers.

2) ICWES16 in Los Angeles

"WE14+ICWES16, International Conference of Women Engineers and Scientists" was held in from 23 October, 2014 to 25 October, 2014, Los Angeles.

"Let's go listen to the real intention of working women engineers".

2) ICWES16 in Los Angeles

Workshop title :Let's go listen to the real intention of working women engineers

Date and hour: 11 : 00～11 : 55 23 October, 2014
Panelist : Ms. Alyse Stofer : Engineering Program Manager at Medtronic, the global leader in medical technology devices.
Ms. Holli Pheil : Senior Electrical Engineer for Nike, in the Nike+ Division in Beaverton, Oregon.
Dr. Marlene Kanga : Director of iOmniscient Pty. Ltd. which has developed patented technology for automated video analysis.
Ms. Ikuko Imoto : Vice-president the Geoecological Conservation Network
Chairperson: Prof. Kayoko Sugahara
Audience size : Over 110 people

We shared 各国それぞれの取り組みや問題を紹介いただき、後半は質疑応答が行われました。
Audience gave us a lot of questions and comments. After this panel, audience made long lines in front of each panelist and gave and take personal questions etc.…

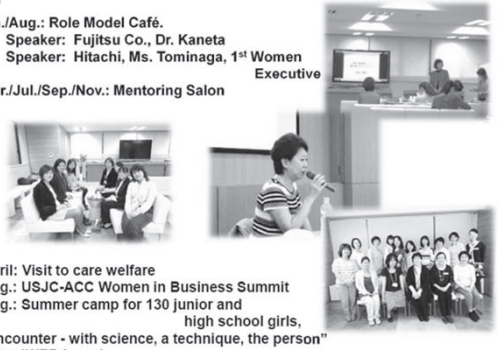
The 6th Japan-China-Korea Women Leaders Forum for Science and Technology in China, 2014

Aug. 19, 2014 , Tong Liao, Inner Mongolia
"Women, Environment and Livelihood"

Hosted by CWAST (China Women's Association of Science and Technology)
Co-Chair by KOFST(Korea Federation of Women's Science&Technology Associations, INWES Japan

JWEF

- Jan./Aug.: Role Model Café.
  Speaker: Fujitsu Co., Dr. Kaneta
  Speaker: Hitachi, Ms. Tominaga, 1st Women Executive
- Mar./Jul./Sep./Nov.: Mentoring Salon



- April: Visit to care welfare
- Aug.: USJC-ACC Women in Business Summit
- Aug.: Summer camp for 130 junior and high school girls,
  "Encounter - with science, a technique, the person"
- Oct.: JWEF Award

JSPEW

- Aug.: Publish pamphlet, " What kind of job exist in Science & Technology ?"
- Aug.: Environmental learning at water side

- Jun./Sep.: Technical Salon for female college students
- Aug.: Summer camp for 130 junior and high school girls.
  "Encounter - with science, a technique, the persons"
- Nov. : Science Agora- Festival of science and technology, held by JST(Japan Science and Technology Agency).

SJWS

- Feb.: Conference hosted by SJWES & Cabinet Office.
  Theme "Science & Technology work for you ",
  180 junior and high school girls
- Mar.: Study for Quota system by Working Group
- Jun.: SJWS Award
- Aug.: Summer camp for 130 junior and high school girls.
  "Encounter - with science, a technique, the persons"
- Aug.: SJWS News Letter
- Oct.: Gender Quality Symposium

Country Report 2015

Korea

Association of Korean Woman Scientists and Engineers (KWSE)

2015 APNN Country Report of Korea

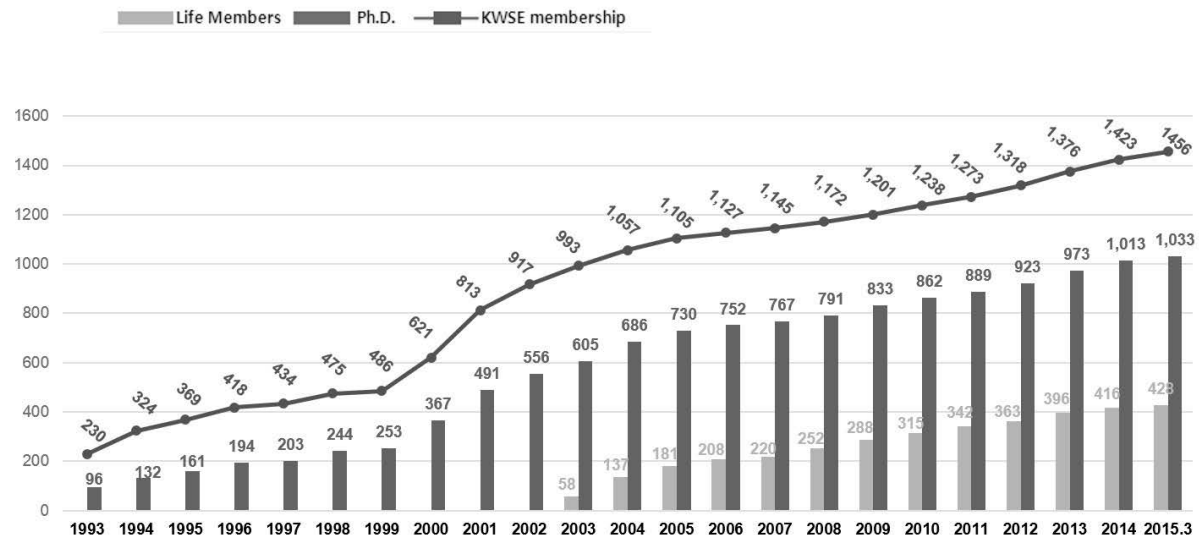
Name of Country	Republic of Korea	
Organization representing your country	Official Name	The Association of Korean Woman Scientists and Engineers (KWSE)
	Address	#806, National Nanofab Center, 291 Daehak-ro, Yuseong-gu, Daejeon, Korea, 305-338
	Homepage	www.kwse.or.kr
	Telephone no.	+82-42-863-8310~2
	Members	1456 (1,033 members with Ph.D. degree, 423 lifetime members)
	Main activities	▪ Forum/Workshop on the proposals for governmental policy regarding scientific technologies ▪ Advocation of the improvement of female scientists' statue and welfare within the Korean scientific community ▪ Increasing public awareness of the scientific community and the encouragement of exchanging academical research related knowledge ▪ Science programs for primary & secondary schools ▪ APNN/INWES activities
	Goal/other information	▪ One of the oldest associations for Women in Science and Technology in Korea ▪ Goal: Expanding social infrastructure for female scientists and engineers
Representative of Organization	Name	Seong Ok Han
	Affiliation & Address	Korea Institute of Energy Research, 152 Gajeong-ro, Yuseong-gu, Daejeon 305-343, Republic of Korea
	E-mail	sohan@kier.er.kr

Names of other organizations for women in your country		▪ Center for Women in Science Engineering and Technology (WISET) ▪ Korea Federation of Women's Science and Technology Associations (KOFWST) ▪ Women in Science, Engineering and Technology in Korea (WiTeck) ▪ Korea Venture Business Women's Association (KOVWA) ▪ Women in Nuclear Korea (WIN Korea) ▪ Women's Bioscience Forum (WBF)

1. Current Status in network of female scientists and engineers since 2014

KWSE has 1,456 members (1,033 members with Ph.D. degree and 423 lifetime members) as of May, 2015. In terms academic level distribution, 70% of members have doctorate degree and 24% has master's degree. Over 94% of KWSE member has master's or higher.

From July, 2014 to May, 2015, 33 new members have joined KWSE. 20 of them held Ph.D degree, and 7 out of them were accepted to be lifetime members.



[Figure 1. KWSE Membership Growth]

2. Best method of expanding community for female scientists and engineers in your country

KWSE has organized the forums for governmental policy to bring attention to issues regarding Women in Science and Technology during the policy-making process. It also held workshops to expand the networks for mutual communication amongst the KWSE members since 1993. Futhermore, as one of the oldest female scientists' and engineers' organization, KWSE has played a key role in enacting the laws for 'fostering and supporting women in science and technology' since 2002.

(a) International Cooperation

One of the KWSE mission is to strengthen the community for female scientists and engineers through academical cooperation and exchange in both domestic and international

level. By successfully organizing the international conferences and programs for female scientists and engineers, KWSE was able to increase the academic exchange for the field of convergence technology enhancing the global standing of Women in Sciences and Technology. These international conferences would serve as the foundation for cooperation and joint research with the female scientists and the engineers of foreign nationality and Koreans living oversea.

APNN & MAPWiST

KWSE has organized the 2014 Meeting of Asia & Pacitic Women in Science and Technology (MAPWiST) from July 29th to August 1st, 2014 at Ewha Womans University in Seoul, Rep. Korea. Young Woman Scientists Camp and 4th Asia Pacific Nation Network has been held in conjunction with MAPWiST2014. It was one of the larger scale international conferences organized by KSWE. In MAPWiST; the policy forum for female scientists and engineers, academic presentations related to astronomy, aviation, climate change and cosmology has been held. 317 internationals including those of Korean origin from 29 different countries have attended MAPWiST in 2014. 85 of them were those without Korean origins from 28 different countries. The 2014 Policy Report on Balanced Development of Human Resources for the Future was published as its result. The report had included international indices on human resource development by APNN member country, answers to individual survey questions by APNN members and top three difficulties APNN members face as a female scientist or engineer within their respective country due to its governmental policies.

Smart Sister Program

KWSE is running a program for international female scientists and engineers residing in Rep. Korea to support their global outreach and encouraging academical exchange while sharing their experiences and challenges of living here. These activities are aimed to provide support to increase their performance within their respective roles and responsibilities while helping them to set a concrete foundation for their research endeavors and careers. The program has been initiated since 2013. While it was initially based in Daejeon region, it has been expanded to 5 other regions. The main focus is to help the international female scientists and engineers by providing a mentoring program that would

provide academic and employment information while discussing career paths and the South Korean culture. Through it, the expectation is that they would be able to promote scientific competition at the international level while assuming the role of scientific diplomats. Various programs including regional scale on/off-line meeting has been held in 2014 and were attended by 153 female scientists and engineers. KWSE continues to operate Smart Sister Program in 2015.

YWS (Young Woman Scientists) Camp

The YWS Camp has been held annually since 2012. This program is designed to help building global competitiveness of next generation female scientists and engineers of the Asia-Pacific region while providing opportunities for global outreach. Academic sessions such as colloquiums, presentations, research communications, field trips to research institution and mentoring programs are offered. The 2 day camp under the theme of "Y.E.S (Young Women Engineers and Scientisrs), we are the future of Asia" will be held from October 17th to October 19th, 2015 in Daejeon, Rep. Korea. Programs such as visiting Korean historial sites, K-pop lessons, colloquiums, research presentations and mentoring will be offered. Furthermore, YWS will be held in conjunction with the World Science Summit. Leaders in Science and Technology (S&T) including members of governmental organization, Nobelists and CEOs from 60 different countries will be visiting this year. Participating in YWS will be a great opportunity for young scientists to meet the global leaders in S&T as well as witnessing the global visions of science and technology.

INWES & ICWES Activities

KWSE actively participates in INWES which is a global network consisting of 250,000 female scientists and engineers from 60 different countires. KWSE will partake in APNN Meeting as INWES regional meeting from June 25th to 27th in Ulaanbaatar, Mongolia. The 6th President of KWSE and President of INWES, Professor Kong-Joo Lee will give an opening remark and an invitation speech and the 1st President of APNN, Dr. Hyang-Sook Yoo will also provide an invitation speech. Then, the 10th President of KWSE, Dr. Seong-Ok Han will hold the country report presentation as the representative of Rep. Korea. Professor Kong-Joo Lee as President of INWES and Dr. Seong-Ok Han are also supposed to attend

ARN on October 21st to 23rd in Entebbe, Uganda as INWES board members.

(b) Science Classes

From the KWSE's beginning, the organization has promoted scientific awareness to the general public. With the support from the city of Daejeon since 2004, "Women Scientists and Engineers' Science Research Class" has become one of the most important scientific culture projects of KWSE. Science classes for elementary and middle school students are held regularly to promote science education and awareness.

KWSE, the women professionals first provided science class program for 21 schools in 2004. Now the total number of accumulative school is 785, student number about 63,000 by 2014. June 2015, KWSE will operate 93 classes which include 3 research institute field trips.

(c) Building Female Scientists' and Engineers' Scientific Capability through Networking

KWSE provides the network for practical cooperation and helps expanding the social network of Women in Science and Technology. This provides a venue for information exchange between the industries and the academia and thus empowering female scientists and engineers with more choices. KWSE plans to organize policy forums and workshops to achieve its goals by holding convergence programs with the Academy of Science, the National Assembly and the Intellectual Property Office Government.

(d) A research programs to enhance women scientists' participation rate in energy research and basic science fields

There is a demand for an advanced scientific information exchange meeting and a call for a drastic change in the energy status worldwide—where leaders of female scientific community working in the energy science field could converge to share their research to share their research trends and forge a comprehensive analysis of energy policies. To collect the opinions and exchange the ideas of women professionals of energy related fields, KWSE held forums in the 2nd half of 2014. Besides, KWSE also have a plan to organize workshop for enhancing the participation of female scientists and engineers in the basic science fields based on the results of policy research project in this year.

(e) Development of evaluation committee database of women scientists and engineers

The project is intended to establish the comprehensive database of domestic women scientists and engineers for the development of the evaluation committee of national level. The database is used for the recommendation of female professionals to the demanded scientific and technological fields and also to lay a foundation for information exchange between women in science and technology.

From 2006, a database of female scientists and engineers provided linkage through the national science and technology knowledge and information services (NTIS). This project also expanded the area for the utilization and participation of women scientists and engineers such as research, analysis, decision making and evaluation on the basis of accumulated database of women scientists and engineers. Starting from 2014, the database for Assessment Committee pool has expanded to the fields of science, technology and policy, economy, humanities, and even arts. At 2015, KWSE continues to establish database of female professionals of various academical fields.

June 25, 2015, 5th Asia & Pacific Nation Network
Ulaanbaatar, Mongolia

Korean Woman Scientists & Engineer (2014-2015)

Han, Seong Ok, Ph.D
President of KWSE
Korea Institute of Energy Research

The Association of Korean Woman Scientists and Engineers

Content

The Association of Korean Woman Scientists and Engineers

1. KWSE

The Association of Korean Woman Scientists and Engineers

The Association of Korean Woman Scientists and Engineers (KWSE) was initiated first in 1989 among the woman scientists & engineers in the Government-Funded Research Institute, in Daeduk.
Dr. Sae Hwa Oh, who became the first chairperson of KWSE started a social gathering among women researchers within Daeduk Research Complex.

Since then, women scientists and engineers had raised the need for 'formal organization' and 230 members had gathered and established **KWSE in September 1993**.

The purpose of the founding KWSE is fostering women scientists and engineers to lead 21st century and playing active-roles in promoting the rights of the women scientists and engineers and establishing network.

'The first organization in Korea for women scientists and engineers of all disciplines'

1.1 KWSE History

- **Sept. 20, 1993 Establishment of the Association (250 members in the Daejeon area)**
- **Sept. 02, 1995 Approved as Public non-profit organization by MOST (Ministry of Science and Technology)**

- Feb. 21, 2003 Establishment of the Busan-Kyoungnam Branch
- May 29, 2003 Establishment of the Gwangju-Jeonnam Branch
- July 29, 2004 Establishment of Daegu-Kyoungbuk Branch

1.2 Mission and Vision

Mission and Vision

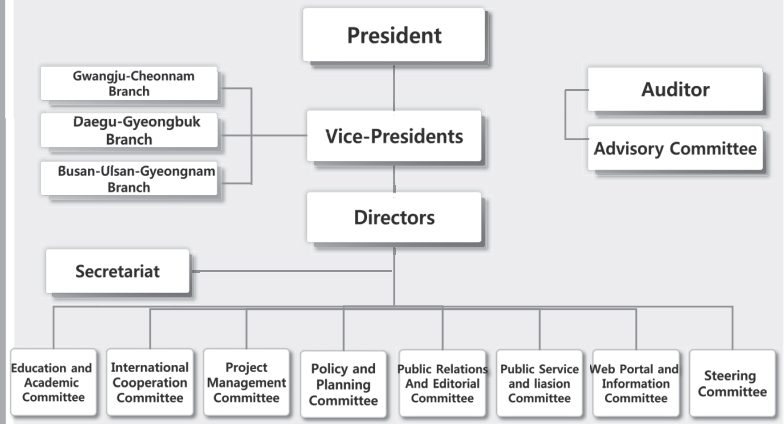
Expansion of the social infrastructure for women scientists and engineers

Encourage of R&D activities by facilitating information exchange

Enhancement of the social status and rights of women scientists and engineers

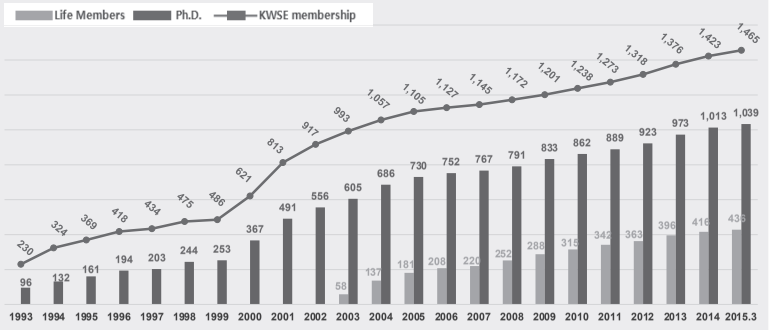
Strengthen of the relationship among women scientists and engineers

1.3 Organization

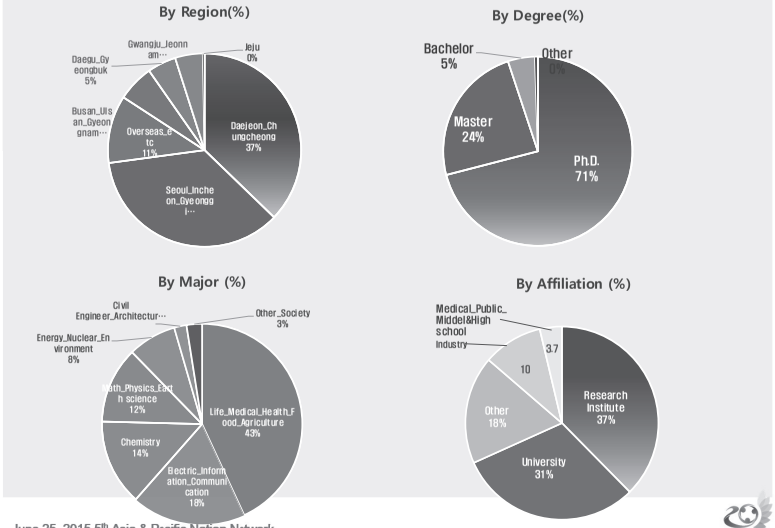


1.4 Membership (1993~2015)

Established in 1993 with 230 members (Now in 2015, 1,465 members)
44 new members (27 members with Ph.D. degrees & 6 Life Members) from July, 2014 to June, 2015
KWSE have experienced a remarkable growth within a short period of time (22 years).



1.5 Current Membership Status



Act on fostering and supporting women Scientists and Engineers

History of Women Scientists and Engineers laws

-2002.12
Legislation of the "Act on Fostering and Supporting Women Scientists and Engineers"

-2004.07
1st Basic Plan for the "Act on Fostering and Supporting Women Scientists and Engineers" (2004~2006, Ministry of Science and Technology)

-2009.11
2nd Basic Plan for the "Act on Fostering and Supporting Women Scientists and Engineers" (2009-2013, Ministry of Education and Science Technology)

-2014.04
3rd Basic Plan for the "Act on Fostering and Supporting Women Scientists and Engineers" (2014-2018, Ministry of Science, ICT and Future Planning)

KWSE has played a key role in enacting the laws for 'fostering and supporting women in science and technology' since 2002.

1.6 Activities

Contribution to national Science and Technology Development
- Participate in developing national R&D policies on science and technology
- Hold youth programs to increase the presence of women in mainstream STEM (Science, Technology, Engineering and Math)
- DB development of women experts for evaluation committees in science and technology

Expansion of Women Rights Enhancement of Welfare
- Propose and pursue the development of women's welfare enhancement policy
- Contribute to job security for women contingent employees in science and technology
- Hold workshops on strengthening global leadership of women scientists and engineers

Communication and Information Exchanges
- Hold international conference on convergence science and technology. (eg. BIEN, the Bio-, Information, Environment and Nano- Technology Conference)
- Strengthen the relationship among the international women's science and technology organizations
- Active involvement in INWES

Encouragement for Scientific-Minded Culture
- Expand science education-related infrastructures to propagate science culture to the general public
- Promote scientific exploration activities aimed to cultivate and encourage young students interested in science and technology
- Support the science WIDE (Wealth, Intelligence, Delight, Efficiency) project of the Ministry of Education, Science and Technology

June 25, 2015 5th Asia & Pacific Nation Network,
Ulaanbaatar, Mongolia

2. Program run by KWSE

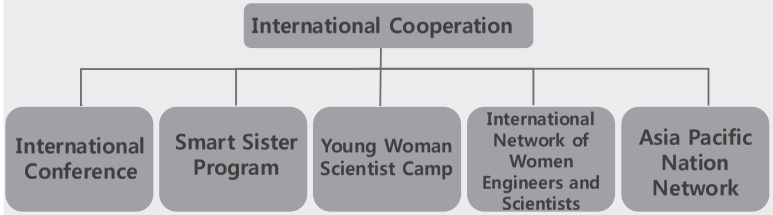
2. Program Run by KWSE

- *International Cooperation*
- *Science Program for Students*
- *Communication Workshops*
- *Establishing an Evaluation Committee Pool for Women*

2.1 International Cooperation

Global Leaders,
To Asia and Beyond

KWSE aims to enhance the global competitiveness of women scientists and engineers through domestic and overseas inter organizational cooperation and academic exchange.



2.2 Science Research Class for Students

From the KWSE's beginning, the organization has promoted scientific awareness to the general public. With the support from the city of Daejeon since 2004, **"Women Scientists and Engineers' Science Research Class" to Elementary / Middle & High school students** has become one of the most important scientific culture project of KWSE.

Program

- Science research classes
- Institute field trip
- Workshop for science research classes
- Publication

2004 ~ 2014 Total

785 Schools

63,000 Students

2.3 Networking Program

KWSE provides the network for practical cooperation and helps expanding the social network of Women in Science and Technology. KWSE organize **policy forums** and **workshops** to achieve its goals by holding convergence programs with the Academy of Science, the National Assembly, the Intellectual Property Office, and Governments.

2.4 Evaluation Committee Database

The project is intended to establish the comprehensive database of domestic women scientists and engineers for the development of the evaluation committee of national level. The database is used for the recommendation of female professionals to the demanded scientific and technological fields and also to lay a foundation for information exchange between women in science and technology.

From 2006, a database of female scientists and engineers provided linkage through the national science and technology knowledge and information services (NTIS). This project also expanded the area for the utilization and participation of women scientists and engineers such as research, analysis, decision making and evaluation on the basis of accumulated database of women scientists and engineers.

3. Achievements in 2014-2015

3.1 International Cooperation
(APNN & MAPWiST, YWS, INWES, Smart Sister Program)
3.2 Science Research Class Program for Students
3.3 Networking program
3.4 Establishing Evaluation Committee Database

Also, as the oldest female scientists' and engineers' organization in Korea, KWSE has played a key role in enacting the laws for 'fostering and supporting women in science and technology' since 2002.

3. Achievements

3.1 International Cooperation

The 4th APNN Meeting & MAPWiST

- Date : July 29 ~ August 1, 2014 Seoul, Korea
- Participants : 322 Participants from 26 Countries (95 foreigners)
- Theme : Leadership, Harmony, and Beyond
- Venue : Ewha Womans University, Seoul, Korea

The 4th APNN Meeting

- Presentation and Discussion session
- Annual Progress report presentation (Country report)

MAPWiST : Meeting of Asia&Pacific Women in Science and Technology

- Policy Forum
- Scientific sessions
- YWS Camp
- Scientific presentation

<table>
<tr><th></th><th>29th July</th><th>30th July</th><th colspan="2">31st July</th><th colspan="3">1st Augst</th></tr>
<tr><td rowspan="2">Morning</td><td rowspan="3">Tour and Cultural Experience Event</td><td rowspan="3">Invited Lecture, The APNN Meeting, (Annual Progress Report Presentation)</td><td colspan="2">MAPWiST Opening Ceremony</td><td rowspan="2">APNN &YWS Mentoring</td><td rowspan="3">Scientific Session Ⅰ (Space Technology)</td><td rowspan="3">Scientific Session Ⅱ (Climate Change)</td></tr>
<tr><td colspan="2">Policy Forum Ⅰ</td></tr>
<tr><td>Afternoon</td><td>Policy Forum Ⅱ</td><td>YWS Camp</td><td>Poster Session</td></tr>
</table>

3.1 International Cooperation

The 4th APNN Meeting & MAPWiST

Opening ceremony

Post session

Space Technology session

Climate Change session

Opening Ceremony

Opening performance

3.1 International Cooperation

The 4th APNN Meeting

' Contributes to improving the perception of the role and status of Asian women scientists and engineers by introducing Korean policy and outcomes of cultivation and support for women scientists and engineers '

- Date : July 30, 2014 Seoul, Korea
- Venue : Ewha Womans University, Seoul, Korea
- Theme : Building a networking map
- Program
  - 11 countries annual Progress report presentation
    (Australia, India, Japan, Korea, Malaysia, Mongolia, Taiwan, Vietnam, Pakistan, Sri-Lanka, Nepal)
  - 3 Special Talk (Dr. Monique Moutaud, Dr. Joan Graf, Dr. Carolin Belan)
- KWSE has published 4 Country report since 2011.

▲ APNN Country Report published

3.1 International Cooperation

The 4th APNN Meeting

APNN member tour

APNN Meeting

APNN Meeting

APNN Meeting

3.1 International Cooperation

Young Women Scientists and Engineers Camp, YWS Camp

' Establish networks and expand mutually-beneficial exchange among Korean, foreign resident, and Asia-Pacific women scientists and engineers '

- Date : July 31, 2014 Seoul, Korea
- Venue : Ewha Womans University, Seoul, Korea
- Theme : YES (Young Women Engineers and Scientists), we are the future of Asia!
- Program
  - YWS tour : Gyongbokgung Palace, The Secret Garden (Biwon)
  - Let's have some fun : K-Pop and exercises
  - Group work : Are we the future of Asia?
  - Poster presentations : Introducing one's research interests
  - Mentoring Program
  - Special Talk : Dr. Mei Zheng from Peking University

3.1 International Cooperation

Young Women Scientists and Engineers Camp, YWS Camp

3.1 International Cooperation

INWES & ICWES Activities

- Date & Venue : October 21 ~ 25, 2014 Los Angeles, U.S.A.
- KWSE delegation participated in,
  - INWES 2012-2014 Board of Director Meeting
  - INWES 2014-2016 Board of Director Meeting
  - The 16th International Conference of Women Engineers and Scientists(ICWES16)

❖ Prof. Kong-joo Lee (KWSE 6th President) reelected as 4th President of INWES
❖ Dr. Seong Ok Han (KWSE 10th President) elected 4th INWES Board of directors
❖ Dr. Myung Hee Jung (KWSE 5th President) awarded with INWSE Service Award

'Improve nation's global influence and build international network'

3.1 International Cooperation

INWES & ICWES Activities

INWES Service Award_Dr. Myunghee Jung

Korean Delegation

INWES Board meeting _ 2014-2016

INWES AGM 2014

3.1 International Cooperation

Smart Sister Program

- Purpose
  - Transfer development model through academic exchanges between foreign women scientists and engineers based in Korea and Korean women scientists, and promotion of human network
  - Engage all foreign women scientists and engineers based in Korea, help to identify /address their challenges via mentoring program
- Content
  - Operate in five regions
  - Academic exchange, mentoring, information portal
  - On/offline information exchange (academic, employment, career, Korean culture etc.)
  - Joint workshop, awards for outstanding performance
- Eligible participants
  - Women of a foreign nationality in a science or technology-related field currently in Korea (undergraduate/graduate students, researchers, or postdoctoral scholars)

3.1 International Cooperation

Smart Sister Program

Major Achievement since 2013

2013
- Held in based in Daejeon area
- 1 Seoul region meeting
- 34 participants from 15 countries

2014
- Expanded to 5 regions nationwide
- 153 participants from 26 countries
- Smart Sister Program General Workshop

June 2015
- Held in 5 regions nationwide
- Expanded to include Korean students
- 3 times meeting in Seoul region
- 1 times meeting in Daejeon, Daegu and Gwangju region

3.1 International Cooperation

Smart Sister Program

- Current Smart Sister Program

Date	Regional Meeting	Participants
September 2014	Hosted 2nd Daejeon regional meeting	11 people from 6 countries
	Hosted 3rd Busan-Ulsan-Gyeongnam regional meeting	9 people from 2 countries
October 2014	Hosted Deagu-Gyeongbuk regional meeting	12 people from 7 countries
	Hosted 2nd Gwangju-Jeonnam regional meeting	6 people from 2 countries
November 2014	Hosted 2nd Seoul regional Meeting	11 people from 6 countries
	Hosted 3rd Daejeon regional meeting	8 people from 7 countries
	Smart Sister Program General Workshop	55 people from 14 countries
December 2014	Hosted 3rd Seoul regional Meeting	12 people from 8 countries
	Hosted 3rd Daegu-Gyeongbuk regional meeting	8 people from 3 countries
	Hosted 3rd Gwangju-Jeonnam regional meeting	17 people from 2 countries
January 2015	Hosted 1st Seoul regional meeting	15 people from 8 countries
February 2015	Hosted 2nd Seoul regional meeting	14 people from 7 countries
March 2015	Hosted 1st Daejeon regional meeting	12 people from 7 countries
April 2015	Hosted 1st Gwangju-Jeonnam regional meeting	48 people from 2 countries
May 2015	Hosted 1st Daegu-Gyeongbuk regional meeting	17 people from 4 countries
	Hosted 3rd Seoul regional meeting	9 people from 4 countries

3.1 International Cooperation

Smart Sister Program

2015Daejeon regional meeting


2015 Gwangju regional meeting

2015 Seoul regional meeting


2014 Daejeon regional meeting


2014 Daegu_Gyeongbuk regional meeting


2014 Busan_Ulsan_Gyeongnam regional meeting

3.1 International Cooperation

Smart Sister Program – General Workshop

- Date : November 7 - 8, 2014
- Venue : Innopolis Daedeck, Daejeon / Gyeryongsan National Museum
- Participants : 55 participants from 14 countries
- Program
  - Special Lecture : Dr. Gye-won Han from Scripps Research Institute, USA
  - Smart Sister Program participant regional representatives (5 regions)
  - Networking with outstanding women scientists and engineers
  - Korea culture trip (Gyeryongsan National History Museum)

'Discuss ideas regarding content and direction/goal of 2015 program'


Smart Sister Program general workshop


Regional representative presentation


Field trip – Gyeryongsan National History Museum

3.2 Science Research Classes for Students

Science Class for Elementary students


Science Class for Middle school students


Korea Atomic Energy Research Institute Field trip


Korea Atomic Energy Research Institute Field trip


Science Class for High school students

KWSE was published "The curious science story"

3.2 Science Research Class for Students

With the support from the city of Daejeon since 2004, **"Women Scientists and Engineers' Science Research Class" to Elementary / Middle & High school students** has become one of the most important scientific culture project of KWSE. June 2015, KWSE will operate 93 science research classes which include 3 research institute field trips. Also, KWSE was published "**The curious science story**" in 2014.

"The curious science story"

3.3 Networking Program

KWSE provides the network for practical cooperation and helps expanding the social network of Women in Science and Technology. This provides a venue for information exchange between the industries and the academia and thus empowering female scientists and engineers with more choices.

KWSE organizes **policy forums** and **workshops** to achieve its goals by holding convergence programs with the Academy of Science, the National Assembly and the Intellectual Property Office Governments.

Building Female Scientists' and Engineers' Scientific Capability through Networking

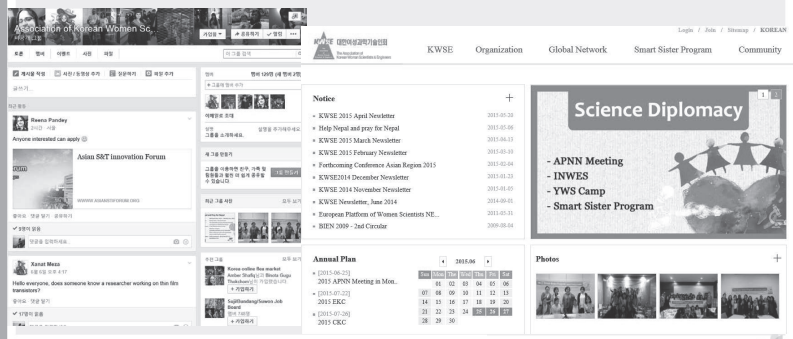
3.3 Networking Program

Homepage and Facebook

❖ KWSE homepage : **http://www.kwse.or.kr**

❖ Facebook KWSE group page : **https://www.facebook.com/groups/662014393820270/**

Upload KWSE information, notification, events, pictures, newsletters, reports and etc.



3.3 Networking Program

Intellectual Property Rights Seminar

- Hosted by KWSE
- Sponsored by the Korean Intellectual Property Office (KIPO)
- Purpose : Broadening the participants' understanding of patent rights and software-related invention and providing information on successful cases of technological development achieved through research and the technological transfer process.

2nd Intellectual Property Rights Seminar : November 13, 2014 / Cheonnam University
3rd Intellectual Property Rights Seminar : May 27, 2015 / National Science Museum, Daejeon

2nd Intellectual Property Rights Seminar

3rd Intellectual Property Rights Seminar

3rd Intellectual Property Rights Seminar

3.3 Networking Program

Policy Forum

- Date & Venue : July 31, 2014 Ewha Womens University, Seoul Korea
- Theme : Action plans towards gender equality in STEM for the Asia and Pacific Nations

- Gender gap in Asia & Pacific nations based on data of UNESCO
- Best practices of career development for women in STEM
- Panel discussion on present condition and policy of Gender equality in Asia & Pacific nations

※ Published 'The 2014 Policy Report on Balanced Development of Human Resources for the Future'

Prof. Kong□u□ock □ee□Committee chair

Invited □ecture

Panel discussion

3.4 Establishing an Evaluation Committee database

The project is intended to establish the comprehensive database of domestic women scientists and engineers for the development of the evaluation committee of national level. The database is used for the recommendation of female professionals to the demanded scientific and technological fields and also to lay a foundation for information exchange between women in science and technology.

From 2006, a database of female scientists and engineers provided linkage through the national science and technology knowledge and information services (NTIS). This project also expanded the area for the utilization and participation of women scientists and engineers such as research, analysis, decision making and evaluation on the basis of accumulated database of women scientists and engineers.

3.4 Establishment an Evaluation Committee Database

Database for Evaluation Committee Pool

Starting from 2014, the database for Evaluation Committee pool has expanded to the fields of science, technology and policy, economy, humanities, and even arts. At 2015, KWSE continues to establish database of female professionals of various academical fields.

Category :
Region, Thesis, Patent
Affiliation, etc.

4.1 2015 YWS Camp & Smart Sister Program Workshop

Date : Saturday 17 – Monday 19, October, 2015, Daejeon, Korea
Theme : YES, we are the future of Asia!

- Recommend **2** Young woman scientists and engineers who can present their research fields
- Eligible participants: bachelor / master / degree of doctor in APNN Member states

- Program

	17th October	18th October	19h October
Morning		Field trip	Participation in World Science Summit
Afternoon	YWS Camp	Smart sister Program Workshop	
	- Opening Ceremony - Invited speaker Ⅰ,Ⅱ - Oral Presentation, Poster Session - Welcome Dinner	- Special Talk - Case Presentation - Group work & Mentoring - The night for Women	

June 25, 2015 5th Asia & Pacific Nation Network,
Ulaanbaatar, Mongolia

4. Future Plans

4.2 Future plans on 2015

KWSE continues to

- Smart Sister program regional meeting
- Policy forum
- Workshop with the Academy of Science and National Assembly
- Participate INWES and ARN (Africa regional network) on October 2015
- Science Classes
- Construction outstanding women scientists and engineers DB
- Organizing network meeting with women scientists and engineers
- Participate EU-Korea Conference (EKC) and US-Korea Conference (UKC) to build global network

'Cooperation leads to success'

The Association of Korean Woman Scientists and Engineers

Dear APNN members, from Dr. Kim Jung Sun

Dear APNN members,

We at the Association of Korean Woman Scientists and Engineers (KWSE) would like to kindly ask that you and your organization participate in the upcoming **survey and data gathering** for an international joint survey among APNN member countries. We will be sending you the **survey sheets via e-mail before the end of June** and ask that you **send us back the raw survey sheets and the results by July 31st**.

This year's theme is "glass ceiling in STEM in Asia and the Pacific." Your cooperation will be crucial in constructing a report on the APNN countries. We are fortunate to have received funding from the Korean government for this project which is managed by KWSE.

For those of you who have participated in last year's survey, you will notice that this year's survey is shorter and simpler. As we did last year, we will be reiumbursing you or your organization for expenses up to 500,000 Kwon (equivalent to about 450 USDollars). We may also ask for reports for which we may send you an honorarium of 300,000 Kwon (about 270 USDollars) to 500,000 Kwon (about 450 USDollars) depending on the content and length.

Please note that the report from this survey is separate from the annual APNN country report.

We look forward to your cooperation. Please do not hesitate to contact KWSE (kwse@kwse.or.kr) or myself for any questions you may have.

June 25, 2015 5th Asia & Pacific Nation Network

The Association of Korean Woman Scientists and Engineers

Thank you

Country Report 2015

Malaysia

Institute of Engineers Malaysia, Women Engineers Section

(IEM WE)

2015 APNN Country Report of MALAYSIA

MALAYSIA	MALAYSIA	
Institution of Engineers Malaysia, Women Engineer section (IEM WE)	Official Name	**Institution of Engineers Malaysia** Women Engineers Section (IEM WE)
	Address	**The Institution of Engineers, Malaysia** Bangunan Ingenieur, Lot 60/62, Jalan 52/4, Peti Surat 223 (Jalan Sultan), 46720 Petaling Jaya, Selangor. MALAYSIA
	Homepage	www.myiem.org.my http://iemwomenengineer.org
	Telephone no.	(603) 7968 4001/ +6014-2233711
	Members	37,964 IEM Members 5,390 IEM-WE Members
	Main activities	To promote and advance the science and profession of all aspects of engineering. IEM WE have the following activities in their calendar year: • Workshops / Talks at Universities/Schools • Evening Talks amongst industry players • Annual Gatherings • Corporate Connection with Women Engineers in the industry • Fellowship with other Engineering Bodies • Circle Leader Training • Branches Visits • Charity Drives IEM WE is planning to host a National Summit in 2015 in 26 November 2015 enroute to an International Conference on Women in Science, Engineering and Technology (WiSET) in 2017.

	Goals/other information	The VISION of the IEM WE is to ensure the Engineering Profession values, supports and celebrates the contributions & achievements of Women in Engineering The MISSION of the IEM WE is to build a network connecting Women Engineers, and drawing strategic alliances amongst engineering professional bodies to inspire, support and celebrate Women Engineers in their professional development. The objectives of IEM WE are: • To connect women engineers locally & internationally; establishing strong networking • To encourage women engineers to participate in Engineering activities To enable a platform for self- development, continuous learning and contribution to the society
Representative of Organization	Name	IR Assoc Prof. LEONG Wai Yie
	Affiliation & Address	Bangunan Ingenieur, Lot 60 & 62, Jalan 52/4, 46200 Petaling Jaya, Selangor. MALAYSIA
	E-mail	sec@iem.org.my waiyie@gmail.com
Names of other organizations for women in your country	• BIM Professional Women • IEEE Women in Engineering (WIE) • Asian-Pacific Resources and Research Centre for Women (ARROW) • Murni Women's Development Foundation of Kelantan (YAYASAN MURNI) • National Council of Women's Organizations, Malaysia (NCWO) • Secretariat For Women's Affairs (HAWA) • Women's Aid Organisation (WAO) • Sarawak Federation of Women's Institutes (SFWI)	

1. Current Status in network of women engineers and scientists since last year

In a recent survey of the engineering industry conducted by IEM and BEM, the women engineers in Malaysia are increasing every year.

This figure can be extrapolated to the rest of the industry with a fair degree of accuracy. The dearth of women in science and engineering has been a long-debated challenge in Malaysia, and is highlighted by the fact that only 10-25% of engineering graduates at Malaysia universities are female.

This is disconcerting for many reasons, not least of which is the fact that true diversity and transformation transcends race to embrace gender. Indeed, although aspects of the engineering industry may long have been associated with men – construction, for instance, has not traditionally been thought of as a feminine sphere – the reality is that it can benefit significantly from the qualities women bring to the workplace, including lateral thinking and an ability to multitask.

Both issues have been addressed by IEM-WE through education campaigns highlighting the realities of a job in engineering, outlining the roles and responsibilities of players and thus dispelling the misconceptions still associated with the industry. Both organisations and their employees have a part to play in this regard, but companies have the further responsibility of ensuring they provide support to their female employees.

The activities and curricula conducted by IEM-WE to network women engineers and scientists in engineering and science, including:

Inspiring the next generation of female engineers
University and school talks by the IEM-WE Committee members

- **Essay Writing Competition**
  Biographical essays or comments on the women engineers and their involvement.

- **Women Engineers Workshop**
  Showcase our most eager young scientists in a way that encourages all kids to discover the wonders of science. They can find Integrated activities, videos and guides, and programs. This workshop consists of engaging stories of girls exploring science, taking into account the research on what girls like and need.

Engineering Education Service
The Engineering Education Service is an engineering education initiative that specializes in providing schools to teach and share the fun of engineering. From

curriculum to books, DVDs, posters, kits and other motivational products, we aim to make engineering understandable and accessible to everyone. The mission of the Engineering Education Service Center is to provide, or help you provide, information resources to promote, guide, and stimulate interest in Science, Technology, Engineering and Math (STEM) with a particular emphasis on "E"ngineering. We seek to diversify the types of engineers by exposing large numbers of students to the capacity they will have to benefit society.

- **Engineering Competitions**
  A list of national and international engineering and technology competitions for students from elementary to high school.

- **IEM Library**
  The library offers a list of ready to use informal science and engineering activities that are fun and aim to positively impact communities.

- **National Women Engineer Summit 2015**

  The summit will be organized on 26th NOV 2015 to provide a platform for outstanding women engineer leaders to share and inspire the members. This summit is planned to raise the image of women engineers and strive toward to their fullest potential.

- **WE 1 Day Brainstor ming Session**

  WE committee members brained storm ideas and comments to the developmet of the WE organization. Various strategies and plannings were discussed.

- **IEM WE Expansion**

  A total of 4 WE branches in Malaysia have been formed over the past years, namely Southern, Perak, Penang and Sabah. Both branches are active in organising activities for women engineers in their respective areas.

  Purpose of branch visits:
  - To establish connection with women engineers in the branch areas.
  - To provide latest updates on activities and information on IEM WE section
  - To conduct dialogue session with local leaders.
  - To provide circle leadership training if required.
  - To enhance fellowship with women engineers

- **Professional Activity – Corporate Connection & Circle Leader Training**

- **Student Activity – Activity at University & School**

  Women Engineers were invited to deliver speech and talks at Unviersity and school.
  School Talks are scheduled for 2015:

(a) SMK Datok Lokman Kuala Lumpur
(b) Tunku Khursiah College, Seremban
(c) SMK Bukit Jelutong

- **Welfare and Community Service**

  Committee members have been involving in welfare and community service to contribute their knowledge and talents back to the society.
  Recent project:

  a) Book donations and educational workshops were scheduled at Orang Asli Village, Kuang, Selangor, to inspire women to proceed their study further.
  b) Village adoption after serious flood in collaboration with UTM
  c) Mercy Project

- **WE Annual Gathering**

  WE members are invited to attend the WE Annual Gathering to network and social with WE committee members. Annual report is presented to the members, inspiring women leaders are invited to deliver their sharing to the members as well.

- **PUBLICITY**

  Women Engineers Voice in JURUTERA Bulletin:

  Publication has scheduled June 2015 for WE to champion the Jurutera Bulletin. Women Engineers published their commetns and articles on women engineers related issues.

- **Connection & Communication**

  Website (IEM WE & WiSET) and Data base:

  WE network and communicate with members and publics via the website and database.

2. Best practices of networking of women engineers and scientists in your country

IEM-WE is one of the nation's Women Engineers leading organization for advancing inclusive culture in engineering to promote innovation and networks. Members can receive customized services that leverage IEM-WE's national network of engineering sectors and its extensive gender and inclusion knowledge base to improve diversity of their workforce.

A IEM-WE partnership provides members the opportunity to enhance recruitment and retention initiatives and promote an organization-wide inclusive culture that values and encourages diversity.

IEM-WE's extensive national network of professionals guide women engineering students, preparing them for innovative practice and success in the workforce. IEM-WE's research-based knowledge about inclusive engineering cultures is a highly regarded resource for both academia and industry to build positive educational and workplace cultures and realize the benefits of diverse, creative and innovative thinking.

IEM-WE builds and strengthen working relationships with campus-based leaders in diverse engineering workforce development to create a robust pipeline of the brightest students representing Malaysia's rich culture.

IEM-WE corporate connections enhance organizational culture of diversity and inclusion to retain talent in engineering, and reap the benefit of investment in the talented women professionals.

3. Suggestion for future network in your country or all over the world

In the era of globalisation and knowledge based economy, women engineers are continuously challenged to contribute towards nation building while maintaining balance in the personal life and at the same time acquiring intellectually challenging and rewarding life-long career. Besides being a career minded individual, women engineers still have to fulfill their social obligations and responsibility towards family. It is pertinent that women engineers in Malaysia do not loose sight of their femininity and still upheld their expected roles in the society such as getting married and bearing children. Development in multi-disciplinary areas of engineering and related disciplines such as nanotechnology, biotechnology, genetic engineering, information technology, communication technology bring new challenges.

Women engineers will have to keep abreast on new technologies continuously. Continuous personal development in nontechnical areas such as management and

financial planning is necessary if one is to be marketable in the industry. The new challenge ahead is for women engineers to go global. We have succeeded in exporting workers in the non-technical field; for example, well-trained Malaysian nurses are much sought after by the middle-east countries. The challenge is also to export our services in engineering. However, this seems to be arduous task where even the men engineers have encountered difficulties in going global.

Women engineers in Malaysia have come a long way in earning due respect and recognition for their efforts and contributions towards nation building from the society. The future of women engineers in the 21st century is bright if the current atmosphere such as equal opportunity and political stability is maintained. One of the determining factors for Malaysia to achieve Vision 2020 will be contribution from women engineers. Women engineers will be among the main backbone in supplying the advance technical knowledge in transforming Malaysia into a developed country.

In 2020, the number of women engineers should be increased every year according to the survey. In the future through WE-ASEAN, we can strengthen the capacity building of IEM-WE members to get the new Technology by training and sharing their experiences from sister countries.

4. Detailed information of members: This information could be helpful when women engineers and scientists want to collaborate with someone working in specific areas. Providing an email address is optional.

	Name	Work/research area	Affiliation	Email (optional)
1	Ir. Raftah Mahfar	Enginering Consultancy / Geotechnical Engineering	The Institution of Engineers, Malaysia (IEM), Board of Engineers Malaysia (BEM)	raftah.scg@gmail.com
2	Ir. Assoc. Prof. Dr. Leong Wai Yie	Universiti / Electronics	The Institution of Engineers, Malaysia, Board of Engineers Malaysia	waiyie@googlemail.com
3	Ir. Suhana Abdul Majid	Consultancy and training	The Institution of Engineers, Malaysia, Board of Engineers	suhana.majid@gmail.com

			Malaysia	
4	Datin Ir. Nor Asiah Othman	Government / Highway Enginering / Project Management	The Institution of Engineers, Malaysia, Board of Engineers Malaysia	norasiah@jkr.gov.my
5	Ir. Norhadziana Jamal	Civil Engineer	The Institution of Engineers, Malaysia, Board of Engineers Malaysia	hadzianajamal@yahoo.com
6	Ir. Mah Siew Kien	Engineer	The Institution of Engineers, Malaysia, Board of Engineers Malaysia	mahsiewkien@gmail.com
7	Engr. Krishnaveni a/p Rangasamy	Engineer	The Institution of Engineers, Malaysia, Board of Engineers Malaysia	krishnavenir@iwk.com.my
8	Engr. Masilah binti Bandi	Engineer	The Institution of Engineers, Malaysia, Board of Engineers Malaysia	masilahb@yahoo.com
9	Engr. Gowry Thambirajah	Telecommunication	The Institution of Engineers, Malaysia, Board of Engineers Malaysia	gowryt@hotmail.com
10	Engr. Dr. Habibah Haron	University / Mechanical Engineering	The Institution of Engineers, Malaysia, Board of Engineers Malaysia	habibah@ic.utm.my
11	Ir. Prof. Dr. Zainab Mohamed	University / Civil engineering	The Institution of Engineers, Malaysia Board of Engineers Malaysia	zzbm901@gmail.com
12	Ir. Sharifah Azlina Raja Kamal Pasmah	Engineering Consultancy and Project Management	Board of Engineer Malaysia (BEM) Member of Chartered Institute of Highway & Transportation (UK), Associate Member of Association of Consulting Engineers	azlina@hss.com.my

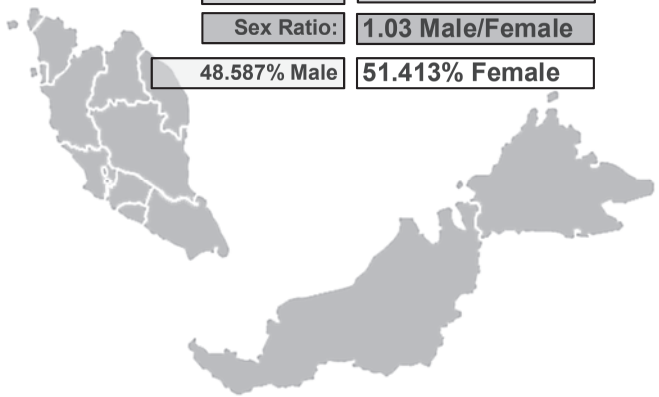
			Malaysia: Associate Member of Malaysia Water Association	

Women Engineers MALAYSIA

By
Ir. Assoc Prof. LEONG Wai Yie
waiyie@gmail.com
The Institution of Engineers, Malaysia
Women Engineers (IEM WE)
2015

STATISTIC: MALAYSIA'S POPULATION

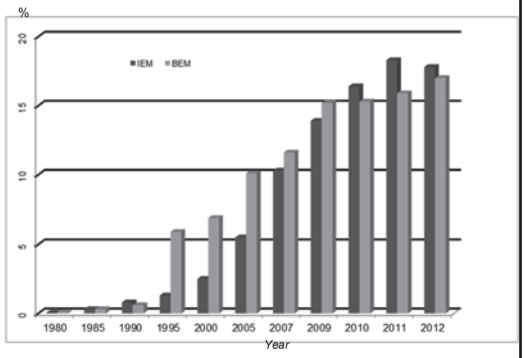
Population :	30 644 293
Sex Ratio:	1.03 Male/Female
48.587% Male	51.413% Female



Source : CIA World Factbook Accessed JUNE 2015

STATISTICS: WE IN MALAYSIA

	IEM		BEM	
	WOMEN ENGINEERS MEMBERS	%	TOTAL REGISTERED WOMEN ENGINEERS	%
1980	2	0.05	10	0.1
1985	22	0.3	23	0.3
1990	85	0.8	58	0.6
1995	168	1.3	1,540	5.9
2000	372	2.5	2,478	6.9
2005	899	5.5	5,031	10.1
2007	1,544	10.3	6,609	11.6
2009	2,685	13.9	8,967	15.2
2010	4,071	16.4	10,296	15.3
2011	8,216	18.3	11,400	15.9
2012	12,278	17.8	13,623	17.0



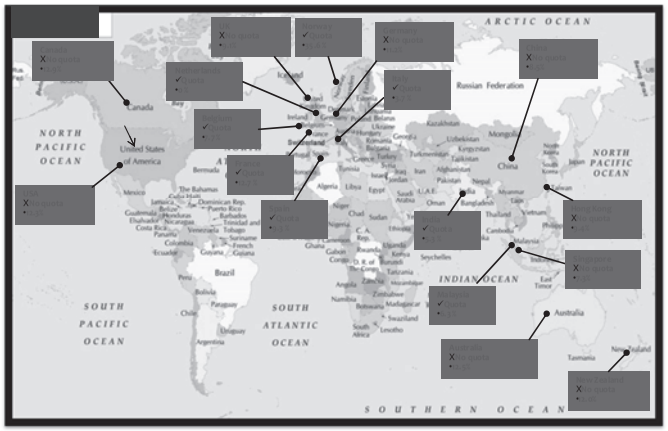
Source : The Institution of Engineers Malaysia
Board of Engineers Malaysia

	2010	2011	2012	2013	2014	2015
Total IEM Members	24,764	23,309	24,194	26,966	28,616	36,189
Total Women Engineers	4,071	8,216	12,273		5390	
% of Women Engineers	16.44%	18.3%	17.8%	0.00%	18.84%	0.00%
Distribution By Grade						
Fellow	9				12	
Corp. Members	420				589	
Graduate	1,102				2,202	
Affiliate	1				1	
Incorporated member	1				3	
Associate Member	1				1	
Student	2,537				2,582	

Distribution By Discipline	
Civil	1,706
Mechanical	583
Electrical	459
Electronic	377
Chemical	604
Others	342

STATISTICS: WOMEN IN DECISION MAKING POSITIONS

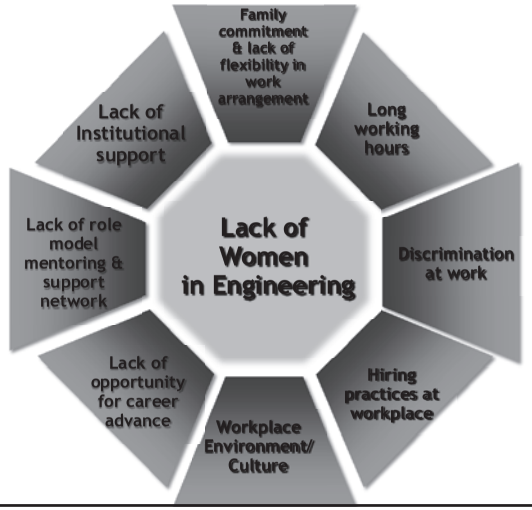
8



Source : GovernanceMetric International March 2011

WOMEN ENGINEERS: THE ISSUES

9



IEM WE: THE FORMATION

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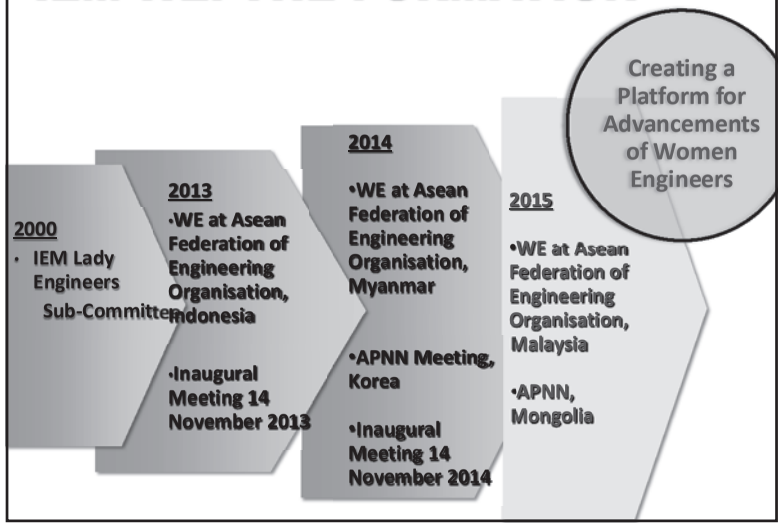
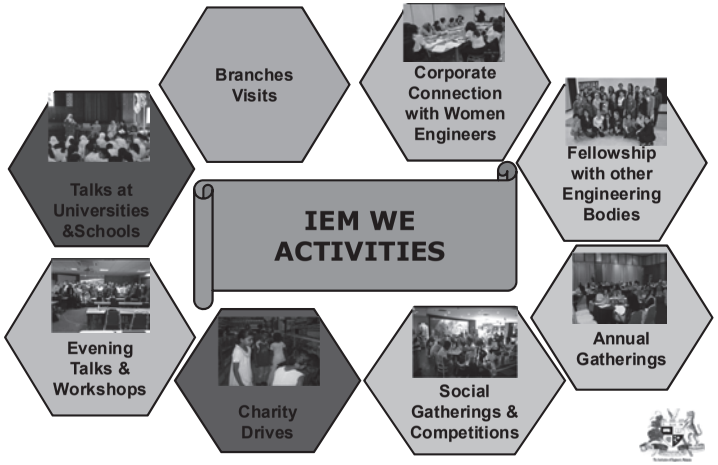


IEM WE: THE AIMS

13

- To connect women engineers locally & internationally; establishing strong networking
- To encourage women engineers to participate in Engineering activities
- To enable a platform for self- development, continuous learning and contribution to the society

IEM WE: ACTIVITIES



TALKS AT SCHOOLS & UNIVERSITIES

Talks at University

- To promote strong enthusiasm among female engineering students.
- Encourage future lady engineers to practice upon graduation by providing a mentoring program.
- To provide insight into engineering industry & its practices.

Engineering Career Talks at Schools

- Introduction to "Engineering" & its various disciplines.
- Deliberation on roles of engineers.
- Discussion on academic requirements.
- Overview of engineering as a career.

EVENING TALKS & WORKSHOPS



- Organising evening talks & soft skills workshops, such as presentation skills, mind mapping, self-empowerment & photography workshops.
- Conducted >10 workshops & talks


CHARITY DRIVES


- Visits to orphanage homes.
- Outings with children from orphanage homes.
- Provide assistance to Single Mothers Society.

INAUGURAL MEETING & ANNUAL GATHERING

- Inaugural meeting held on 24 August 2013
- Formation of new IEM WE committee
- Forum, fashion show & ketupat making competition

CORPORATE CONNECTION

- Collaboration with corporate organisations.
- To encourage women engineers to participate in activities organised by IEM WE.
- To encourage women engineers to volunteer & contribute their service to IEM WE.

SOCIAL ACTIVITIES & COMPETITIONS

- Organised essay writing competition.
- Organised bowling competitions.
- Fellowship with fellow engineers.

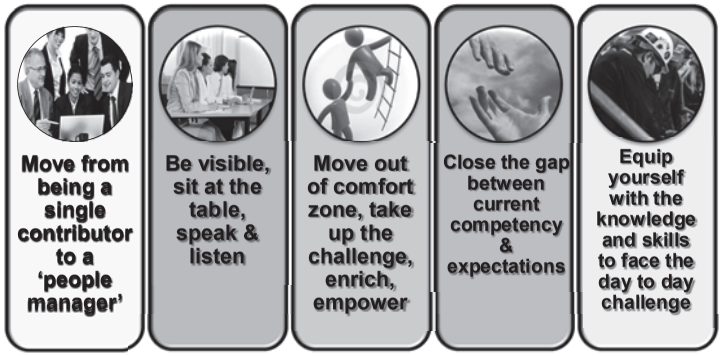
FELLOWSHIP WITH OTHER ENGINEERING BODIES

First Asean Networking held from 31 March 2013 to 2 April 2013, in Bangkok, Thailand

BRANCH VISITS

- 4 WE branches have been formed over the past years.
- One each in Southern, Perak, Penang and Sabah.
- Both branches are active in organising activities for women engineers in their respective areas.
- Purpose of branch visits :
  - To establish a connection with women engineers in the areas.
  - To provide latest updates on activities and information on IEM WE section
  - Dialogue session with local leaders.
  - To provide circle leader training if required.
  - Fellowship with women engineers

WE ARE MISSION READY



2014 Activities

Month	Date	Event/Meeting
January	15	9th Meeting
February	12	10th Meeting
	14	Route to PE 's Talk @ IUKL
	21	Southern Branch Launching and UTM's Boost Up Talent Workshop
	21-22	Penang Branch Launching
	23	Visit to Kg. Orang Asli at Ulu Kuang, Rawang, Selangor
	26-27	2-Days Workshop Present With I.M.P.A.C.T. – Ms. Sharon Ng
March	1-2	Team Building Programme at Klana Resort, Seremban
	5	Talk on "Catching-up With the Best Engineering Country is Easy If We Understand Their Excellent Mind (focus on German Automotive Manufacturers) – Nur Fatihah Mohd Yusak
	8	Post Team Building Programme at Klana Resort, Seremban

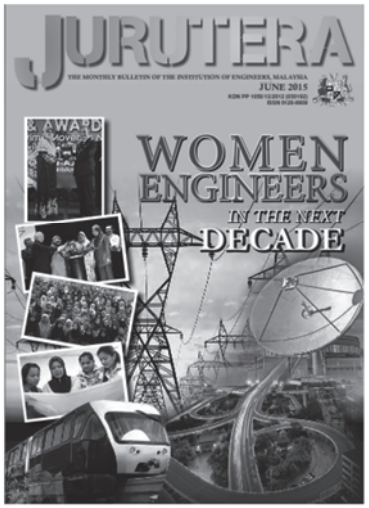
2014 Activities

MARCH	8	1-Day Workshop Professional Corporate Image For Men – Ms. Wendy Lew
	12	11th Meeting
	22	UKM Women Engineer's Day
	24	Talk on Parkinson's Awareness – Ms. Sara Lew at Taylors University
	24-25	2-Days Workshop Present With I.M.P.A.C.T. – Ms. Sharon Ng
April	2	Talk on Financial Planning – Ms. Jeniffer Yong
	9	12th Meeting
	19	Meeting with IEM Branch Chairman/Representative
	28	Perak Branch Launching
May		Photography Competition Deadline: Submit by 31st July 2014
	14	13th Meeting
	30	Visit secondary school students from Kg. Orang Asli , Ulu Kuang, Rawang to UTM, KL and Taylors University.

2014 Activities

June	11	14th Meeting
Month	Date	Event/Meeting
June	28	1 Day Workshop on Professional Photography
July		-
August	13	15th Meeting
	6	1-Day Course On Introduction To Lidar Survey Technology
	20	One Day Systematic Decision Making Technique
	23	WE Annual Gathering
September	4	Corporate Connection @ TNB
	10	16th Meeting
	7-14	Engineering Weeks
	18	KUBINA (Konvensyen Usahanita Binaan) 2014, PWTC
		Election of new Chairman
October	8	17th Meeting
		Announcement of 1st IEM WE AGM
November	5	18th Meeting
	9-12	CAFEO 32
December	6	1st AGM

Engineering Magazine, JUNE 2015



ASEAN Women Engineers

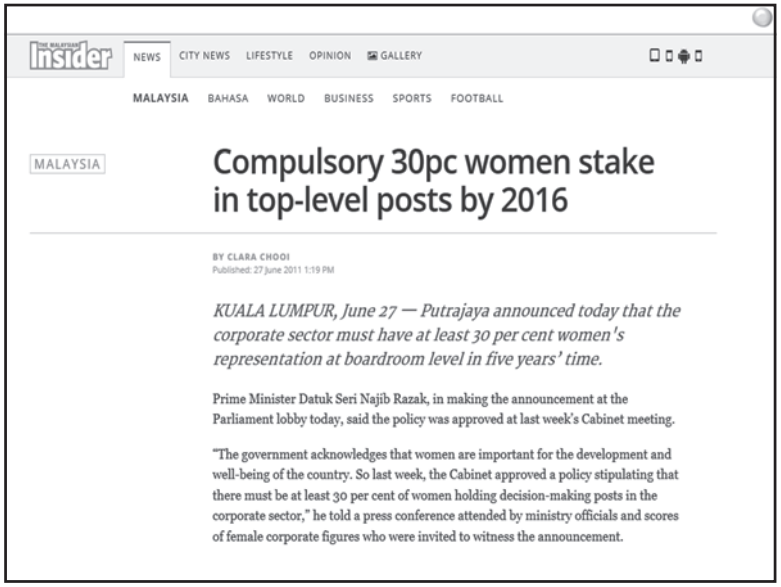
Women Engineers Won Presidential Award of Excellence

At the 55th Annual Dinner on 18th APR 2015.

Recognise their excellent performance and contributions to the engineering community and public

Country Report

The 3rd Annual Women in Engineering Leadership Forum Asia 2015 (18-19 MAY 2015), Kuala Lumpur



The Malaysian Insider

NEWS | CITY NEWS | LIFESTYLE | OPINION | GALLERY

MALAYSIA | BAHASA | WORLD | BUSINESS | SPORTS | FOOTBALL

MALAYSIA

Compulsory 30pc women stake in top-level posts by 2016

BY CLARA CHOOI
Published: 27 June 2011 1:19 PM

KUALA LUMPUR, June 27 — Putrajaya announced today that the corporate sector must have at least 30 per cent women's representation at boardroom level in five years' time.

Prime Minister Datuk Seri Najib Razak, in making the announcement at the Parliament lobby today, said the policy was approved at last week's Cabinet meeting.

"The government acknowledges that women are important for the development and well-being of the country. So last week, the Cabinet approved a policy stipulating that there must be at least 30 per cent of women holding decision-making posts in the corporate sector," he told a press conference attended by ministry officials and scores of female corporate figures who were invited to witness the announcement.

NATIONAL WOMEN ENGINEERS SUMMIT
26 NOVEMBER 2015
EQUATORIAL HOTEL, PENANG, MALAYSIA

25 November 2015 (Wednesday) - Pre Summit

TIME	ACTIVITY	REMARKS
1.30pm – 3.30pm	WE-AFEO Forum	WE-AFEO Committee Members
4.00pm – 6.00pm	IEM WE Branch Meeting	IEM WE Committee & Branch Members
6.00pm – 10.00pm	Pre-registration Dinner	Venue : Equatorial Hotel, Penang, Malaysia

26 November 2015 (Thursday) - Day 1

TIME	ACTIVITY	REMARKS
8.00am	Registration for National WE Summit 2015 Breakfast & Networking Session	Venue : Equatorial Hotel, Penang, Malaysia (Ballroom)
8.45am	Participant assemble in the hall Arrival of Guest of Honour	
8.55am	Opening Ceremony – Montage & Drum Performance	
9.00am	Opening Address by Organizing Chairlady	Organizing Chairlady of National WE Summit 2015
9.10am	Message from President of the Institution of Engineers, Malaysia (IEM)	President of the Institution of Engineers, Malaysia (IEM)
9.15am	Opening Speech by Guest of Honour	
9.45am	Certificate presentation to sponsors Photography session with sponsors Presenting of Conference Material/IEM Publications to Guest of Honour Tour of exhibition area	
10.00am – 10.30am	MORNING BREAK & NETWORKING SESSION	
10.30am – 11.00am	Key Note Address 1 Topic : To be confirmed	Speaker 1
11.00am – 12.00pm	Forum 1 – Topic : 'Raise The Image of Women Engineers Towards Awareness & Strive to Their Full Potential'	Chairman 1 Speaker 2 Speaker 3
12.00pm	Question & Answer Session	
12.30pm – 2.00pm	LUNCH & FASHION SHOW (Muslim Apparels & Malaysian Fusion)	
2.00pm – 3.00pm	Forum 2 – Topic : 'Recognize Women Engineers Involvement Towards Malaysia as a Developed Nation'	Chairman 2 Speaker 4 Speaker 5
3.30pm – 4.00pm	Key Note Address 2	Speaker 7
4.00pm – 5.00pm	Forum 3 – Topic : 'Enhance the Capabilities of Women Engineers in Work, Life, Balance'	Chairman 3 Speaker 8 Speaker 9 Speaker 10
5.00pm – 5.30pm	Question & Answer Session	
6.00pm	GALA HIGH TEA & NETWORKING SESSION	

THANK YOU
TERIMA KASIH

IEM Women Engineers Section (Session 2014/2015)

Country Report 2015

Mongolia

Woman in Science, Technology, Engineering, Mathematics in Mongolia

(WSTEM)

2015 APNN COUNTRY REPORT OF MONGOLIA

Name of Country	Mongolia	
Organization representing your country	Official Name	Women in Science, Technology, Engineering and Mathematics in Mongolia (WSTEM in Mongolia)
	Address	18-430, 5th Khoroo, Khan-Uul district, Ulaanbaatar, Mongolia
	Homepage	www.wstem.mn
	Telephone no.	976-91110666, 976-99015671
	Members	Board members 22 women, Members 193 women Consultants 3
	Main activities	• Organize activities to promote women in innovative science, engineering, technology and mathematics research, education and service activities • Organize and attend national and international conferences • Collaborate to carry out national and international researches and mutual exchange experiences • Organize scholarship and training opportunities for women, at all levels in their development • Support the publication of papers and assist with copyright and tech transfer Enlighten the culture and traditions with respect to women in Mongolian society
	Goals/other information	Vision: To enhance the reputation of Mongolian women in STEM fields in the world Mission: To be the leading women's organization with advanced action and synergy that contributes to science, engineering, innovation and social and economic development of Mongolia.
Representative of Organization	Name	Ariunbolor Purvee
	Affiliation & Address	Mongolian University of Science and Technology
	E-mail	wsteminmongolia@gmail.com

1. Current Status in network of women engineers and scientists since last year

a. Statistics in higher education in Mongolia

Students of universities : In the academic year of 2014-2015, there were total 100 universities, institutions and colleges; 16 of them are state and 79 of them are private universities and institutes. In this year, 178,295 students are currently studying at universities in Mongolia; 57.50% of them are women and 42.5% men. The number of students did not change compared to last year (Table 1 and Table 2).

Table 1: Total Current Students

	female male	Female	Male	Total
2012-2013	58% 42%	101,557	71,241	**172,798**
2013-2014	58% 42%	102,427	73,164	**175,591**
2014-2015	59% 41%	102,520	75,775	**178,295**

Source: from website of the Education Ministry in Mongolia

Table 2: Current Women Students in 2014-2015 - by all degrees and field

Fields	Bachelor Master PhD	Bachelor	Master	PhD
Education		81%	83%	83%
Health Science		82%	78%	78%
Art&Human science		63%	71%	71%
Social Science, media		65%	64%	64%
Others		56%	56%	56%
Agriculture		54%	59%	59%
Natural Science, math, statistics		44%	59%	59%
Engineering,information, communication		29%	40%	40%
Service		19%	28%	28%
Total		**57%**	**63%**	**63%**

Woman undergraduate students in Engineering field is decreased by 3% in the academic year of 2014-2015.

Graduation of the 2014-2015 years by numbers (Table 3) and by percentage of women (Table 4) .

Table:3 Graduations in 2014-2015,

	Female Male	Female	Male
Others	56% 44%	56%	44%
Service Field	20% 80%	20%	80%
Health Science	81% 19%	81%	19%
Agriculture	55% 45%	55%	45%
Engineering,information, communication	29% 71%	29%	71%
Natural Science, math, statistics	47% 53%	47%	53%
Social Science, media	64% 36%	64%	36%
Art&Human science	64% 36%	64%	36%
Education	81% 19%	81%	19%
Total		64%	36%

Faculty: The percentage and number of faculty did not change much compared to last year. Table 4 shows the percentage number of women faculty, by level, in 2014-2015.

Table 4: 2014-215 Faculty, by Level

Level	Female Male	Female	Male
Professor	36% 64%	272	487
Associate professor	53% 47%	492	437
Senior lecturer	67% 33%	1303	641
Lecturer	66% 34%	2058	1074
Assitant lecturer	66% 34%	503	261
Total	61% 39%	4628	2900

Table 5 shows the percentage holders of degree of Mongolian universities, institutions and colleges and women holder of degree. Total faculty number was 7331 and 23% of them were PhD holders.

Table 5: Percentage of degree holders

Degree	Female Male	Female	Male
Bachelor	7% 3%	958	1,001
Master	41% 22%	3,111	1,642
PhD	13% 13%	558	256

b. Members of WSTEM in Mongolia

Board Members: WSTEM Mongolia has 22 Board Members and 3 Honored Consultants. It increased by 11 Board Members since last year.Table 6 show fields of Board members. 68% of board members are PhD holders, 32% of them are Master degree holders (Table 7).

Table 6: Fields of Board Members

Field	Percentage	Board Members
Health Science	9%	2
Social Science	36%	8
Natural Science	14%	3
Agricultural	9%	2
Education	14%	3
Engineering	18%	4
Total		22

Table 7: Degrees held by Board Members

Degrees	Board Members	Percentage
Master	7	32%
PhD	15	68%

Members: WSTEM Mongolia has 193 members. It increased by 94 members. Statistics of members

of WSTEM in Mongolia are showing pecentage of research field, degrees and ages of members of WSTEM (Table 8-10).

Table 8: Members in research fields

Field	Percent	Numbers
Engineering	45%	45
Education	20%	20
Agricultural	13%	13
Natural Science	9%	9
Social Science	6%	6
Health Science	4%	4

Table9: Members by ages

Field	Percent	Numbers
Engineering	36%	70
Education	23%	44
Social	15%	28
Health Science	8%	16
Natural	8%	15
Agriculture	7%	14
Others	3%	6

Table 10: Members by degrees

Degrees	Percent	Numbers
PhD	34%	65
Master	48%	93
Bachelor	17%	32
Other	2%	3

2. Best practices of networking of women engineers and scientists in your country

a) *2015 meeting of the Asia Pacific Nation Network (APNN), held in conjunction with the*

International Conference of Women in Science in Mongolia (ICWSM): WSTEM in Mongolia was selected as the host country for the 2015 meeting of the Asia Pacific Nation Network (APNN), held in conjunction with the International Conference of Women in Science in Mongolia (ICWSM). The conference and meeting held in Ulaanbaatar, Mongolia from 25 to 27, June 2015. conference theme is “Education Reform and Innovation.” The reason for hosting the ICWSM here in Mongolia is to introduce the work of Mongolian women scientists to a national and international audience, to discuss potential collaborative research projects, to hear about new research results, activities and methods, and to learn from the practical experiences of colleagues from other countries who have used innovation to guide reforms in higher education This conference is the largest event WSTEM in Mongolia has attempted, giving us the visibility we need to let Mongolians know about our organization and yours. Through the contacts of our Board Members, TV, radio, Twitter, Facebook, and magazine and newspaper interviews, we have reached a wide audience in Mongolia to explain about INWES, APNN, ICWEST and WSTEM in Mongolia. Our members are increasing based on this conference, which will allow us to continue our work more effectively once the conference comes to an end.

b) *Best women awards:* Motivated by examples set at the INWES and APNN meetings, and in discussions that emerged from preparing Mongolia’s 2014 Action Plan, we realized that there are no awards for women scientists in Mongolia. This bi-annual award ceremony for women in STEM will recognize the best women scientist in the following disciplines: Agriculture, Medicine, Engineering, Technology, Food and Light Industry, and Education and Social Science. A feature of the International Conference of Women in Science in Mongolia is the inaugural awards ceremony for women in STEM fields, a first in Mongolia.

c) ICWES16 in Los Angeles

“WE14+ICWES16, International Conference of Women Engineers and Scientists” was held in from 23 October, 2014 to 25 October, 2014, Los Angeles. WE14+ICWES16 was the special Conference that covered the topics of Technology, Engineering, Science and Women Engineers and more. The total number of participants were expecting to get involved in this Conference was almost 8000.

Three board members participated WE14+ICWES16.

d) *Orkhon branch:* The Orkhon branch of WSTEM Mongolia was founded on December, 2014. Erdenet Branch has 79 members. Erdenetsesteg.D, Ekhtsetseg.B and Burenjargal.D are chairs and Ganzoris is the consultant of of Orkhon branch. The open ceremony was organized on March 31, 2015.

Some photos of Orkon Branch

e) **Subconference of Social Science & Education:** The conference of Social Science and Humanity's Education Reform, Innovation was organized on April 28, 2015. Subconference is the preparation of the Ainternationa Conference of Woman in STEM in Mongolia and its goal is to identify the impacts of education on society and economics and to build an innovation-oriented educational system. Total of 85 people were involved this conference and summarized the education reform of Mongolia.

Some photos of conference

d. **Activity at University & School :** We orgainzed the following activities for mentoring STEM professionals

- Meeting with students of high scools in Erdened, Darkhan cities and 4 sums of Seleng provinces on March 18-22 and April 9-13, 2015.
- The training for freshman by professors invited by WSTEM
- The professional trainings:
- Professional seminar by Larry Diamond, PhD, Professor of Stanford University, USA at the National University of Mongolia on May 5, 2015
- Professional On Thursday on 28th May 2015 at the National University of Mongolia on the topic of Swedish Economic Development and Policy History. Visiting Mongolia from the Luleå University of Technology in Sweden, Dr Jerry Blomberg and Dr Bo Jonsson both hold a PhD and have each conducted extensive research on the subject of economics and social sciences, particularly in the area of metals and minerals.

e. **Websites:** We developed the following two webstes in this year.

- Official website of WSTEM: wstem.mn
- Conference website: http://wstem.mn/conference_en.php

f. **Activity for woman:** Undram Chinbat, vise President gave lecture for 150 woman in the jail and donated 300books and journals.

3. Suggestion for future network in your country or all over the world

- We could seek opportunities for book donations, the titles of which would be suggested by WSTEM Members

- We could seek scholarship opportunities for WSTEM members (postdoc, PhD and master degree candidates) from member countries of INWES
- We could organize a scientific tour (technology, innovation, industry) to countries belong to INWES and APNN
- We could collaborate and study the experience of member countries of INWES and APNN to address the following:
    - Launch and develop programming curricula in engineering
    - Develop Green economic and nature-friendly and nature-oriented technology and industry
- Conduct joint research with member countries of INWES as follows:
- Mongolian Educational Contents Based on Comparative Study of Western and Eastern education methods
    - Policy of money on market and inflow of money (how to reduce inflation)
    - Reduction of air pollution
    - Risk management in health
- Initiate an Exchange program among member organizations of women in STEM.
- International tour: To organize scientific tour (technology, innovation, industry) to high developed countries
- Publishing and Science related books and magazine
- TV Interview
- Scientific exhibition
- Students contest: Best Science Student
- Scholarship opportunities: International and domestic
- Summer School
- To seek an opportunity to get the book donation
    - Translation initiatives

4. Detailed information of members:

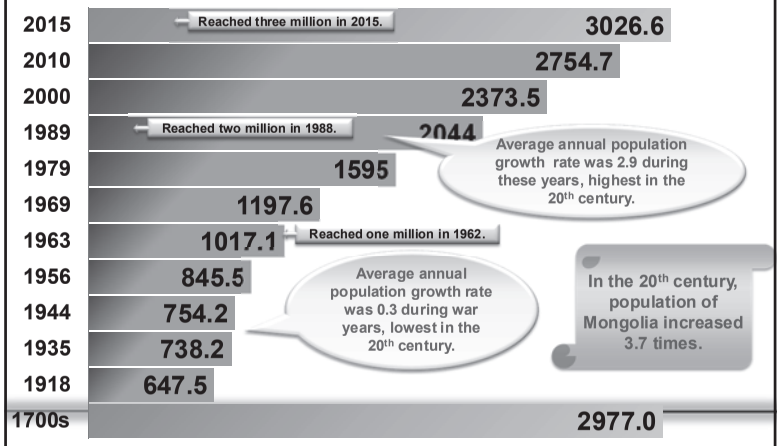
Board members' information is available in the link http://wstem.mn/pages/27 , Members' information is available in the http://wstem.mn/pages/48 .

Situation of women scientists in Mongolia

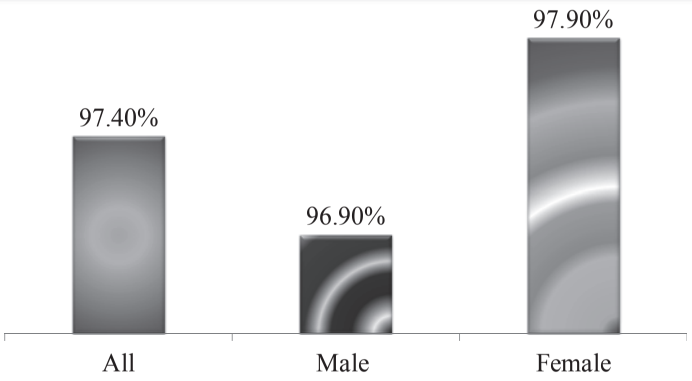
WSTEM in Mongolia

Undram Chinbat (D.Econ)

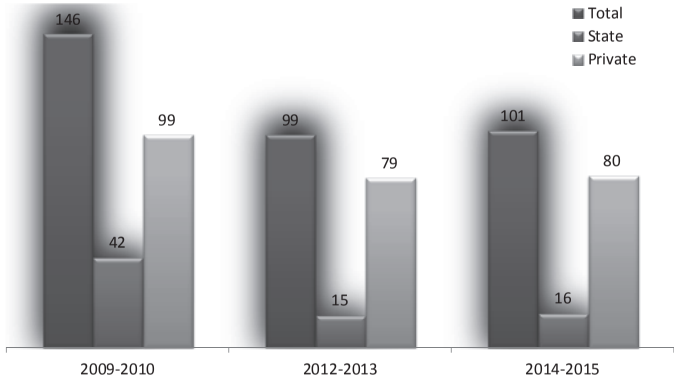
POPULATION OF MONGOLIA, (in thousands)



Literacy rate in 2015



Education



Women students in 2015

Fields	Bachelor	Master	PhD
Education	81%	83%	83%
Health Science	82%	78%	78%
Art&Human science	63%	71%	71%
Social Science, media	65%	64%	64%
Others	56%	56%	56%
Agriculture	54%	59%	59%
Natural Science, math, statistics	44%	59%	59%
Engineering,information, communication	29%	40%	40%
Service	19%	28%	28%
Total	**57%**	**63%**	**63%**

Students of universities of Mongolia

	female	male	Female	Male	Total
2012-2013	58%	42%	101,557	71,241	**172,798**
2013-2014	58%	42%	102,427	73,164	**175,591**
2014-2015	59%	41%	102,520	75,775	**178,295**

57% of the total academic degree are Master degree and 34 percent are PhD and 9 percent are ScD.

Graduations in 2014-2015

	Female	Male	Female	Male
Others	56%	44%	56%	44%
Service Field	20%	80%	20%	80%
Health Science	81%	19%	81%	19%
Agriculture	55%	45%	55%	45%
Engineering,information, communication	29%	71%	29%	71%
Natural Science, math, statistics	47%	53%	47%	53%
Social Science, media	64%	36%	64%	36%
Art&Human science	64%	36%	64%	36%
Education	81%	19%	81%	19%
Total			64%	36%

34.4 percent of women PhD holders in 2003 , 45.38 percent of women PhD holders in 2010. Women PhD holders are increasing gradually with year.

Faculty of Universities

Level	Female	Male	Female	Male
Professor	36%	64%	272	487
Associate professor	53%	47%	492	437
Senior lecturer	67%	33%	1303	641
Lecturer	66%	34%	2058	1074
Assitant lecturer	66%	34%	503	261
Total	61%	39%	4628	2900

Faculty of Universities

Degree	Female	Male	Female	Male
Bachelor	7%	3%	958	1,001
Master	41%	22%	3,111	1,642
PhD	13%	13%	558	256

Degrees held by Board Members

Degrees	Board Members	Percentage
Master	7	32%
PhD	15	68%

Board Members of WSTEM in Mongolia

Field	Percentage	Board Members
Health Science	9%	2
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Agricultural	9%	2
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Members by ages

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Members by degrees

Degrees	Percent	Numbers
PhD	34%	65
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Bachelor	17%	32
Other	2%	3

Best practices of networking of women engineers and scientists

WSTEM
INTERNATIONAL CONFERENCE

Websites

- Official website of WSTEM: wstem.mn
- Conference website: http://wstem.mn/conference_en.php

Official website of WSTEM

Conference website

Best women awards

WSTEM
MONGOLIA

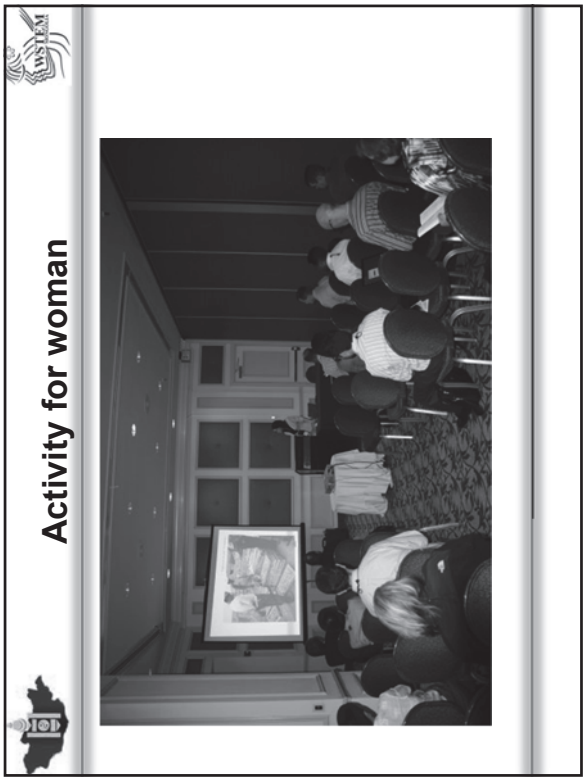
ICWES16 in Los Angeles

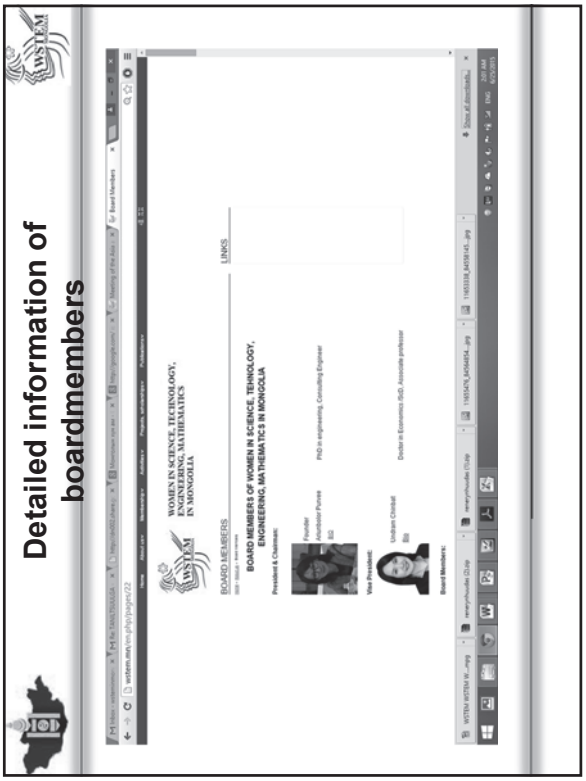
Orkhon branch

Subconference of Social Science 4 Education &

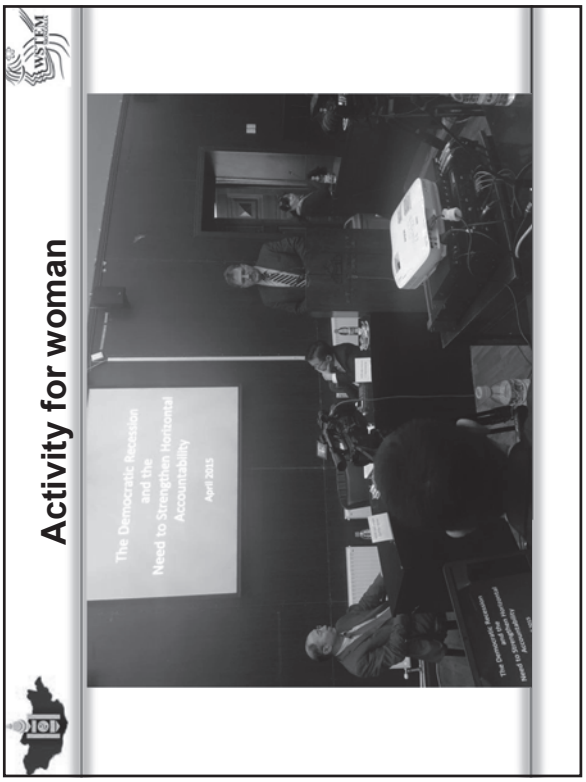
Subconference of Social Science 4 Education &

Subconference of Social Science 4 Education &


Activity for woman


Detailed information of boardmembers
WOMEN IN SCIENCE, TECHNOLOGY, ENGINEERING, MATHEMATICS IN MONGOLIA
BOARD MEMBERS
LINKS
BOARD MEMBERS OF WOMEN IN SCIENCE, TEHNOLOGY, ENGINEERING, MATHEMATICS IN MONGOLIA
President & Chairman:
Vice President:
Board Members:


Activity at University & School
ХҮНИЙ ТӨЛӨӨ - ЭӨВ ТУС
САРЫН ӨДӨР
03.19.2015


Activity for woman
The Democratic Recession and the Need to Strengthen Horizontal Accountability
April 2015

Detailed information of members

- Thank you very much for your attention

Reference

- Nordby, Judith (1994) “Mongolia: A Centrally Planned Economy in Transition” in The China Quarterly, no.139
- Mongolia Country Gender Assessment, May 9, 2003
- http://www.un.org/Depts/escap/pop/journal/v11n4a2.htm
- http://www.toollogo2010.mn/graph.php

Country Report 2015

Nepal

Women in Science and Engineering in Nepal

(WISE Nepal)

2015 APNN Country Report of Nepal

Name of Country	NEPAL	
Organization representing your country	Official Name	Women in Science and Engineering in Nepal
	Address	Ekantakuna, Jawalakhel, P.O. Box 113
	Homepage	Not yet
	Telephone no.	977-985-111-4856
	Members	8 in executive committee and 21 others general members
	Main activities	1. To create a platform of opportunities for sharing information, knowledge, networking for the benefit of women professionals in science and engineering. 2. To collaborate with educational institutions for providing incentives to increase female enrollments in Science, Engineering and Technology faculties. 3. To create a national data bank of women scientists and engineers. 4. To create awareness among girls and encourage them to study science and engineering for a better career. 5. To identify issues hindering women in science and engineering for their career growth. 6. To provide support for mentoring, coaching, and counselling for young women scientists and engineers to establish in their profession. 7. To facilitating women engineers and scientists to participate in seminars and conferences across the world.

	Goals/other information	Goal: Women Scientists and Engineers in Nepal have better prospects through their active involvement and participation. Objectives: 1. Women scientists and engineers in Nepal take advantage of increased networking and knowledge sharing for their professional development in science and engineering related fields. 2. Women scientists and engineers in Nepal raise their voices for women-friendly policies in their workplaces
Representative of Organization	Name	Ms. Jun Hada
	Affiliation & Address	WISE Nepal
	E-mail	jun.hada@eda.admin.ch; arogya_hada@yahoo.com
Names of other organizations for women in your country		

1. Current Status in network of women engineers and scientists since last year

WISE Nepal has emerged in 2014, at the end of first year WISE Nepal has conducted a programme in a remote school with the objective of orientation STEM sector to students of Grade 9 and 10. This programe was focused on encouraging female students to follow STEM career. In the same year, some executive members of WISE Nepal participated in the YWSC and APNN 2014 held in Korea. This even has benefited them with an exposure and also got them to know how women engineers and scientists across the region and globe have been through in their career paths and how some of them have emerged as leaders.

2. Best practices of networking of women engineers and scientists in your country

- *The advocacy among the institutions implementing various engineering projects in the country inclusion and diversity in the workforce, which include women engineers and engineers from discriminated groups.*
- *Promotion of internship programmes for fresh women engineering graduates in different engineering projects to help them enter into engineering job markets.*

3. Suggestion for future network in your country or all over the world

- *Continue with regional and global network meetings and share good practices amongst the members.*
- *Share roster of experts/specialists in available in the region and countries to provide windows of consulting and other opportunities for fellow members*
- *To explore potentials for capacity building of the network members by organizing exchange programmes, joint research initiatives between regional networks*

4. Detailed information of members: This information could be helpful when women engineers and scientists want to collaborate with someone working in specific areas. Providing an email address is optional.

	Name	Work/research area	Affiliation	Email (optional)
1	Jun Hada	Rural infrastructure development	Swiss Agency for Development Cooperation (SDC)	jun.hada@eda.admin.ch
2	Bina Khanal	Development of Trail Bridges in Nepal	HELVETAS- Swiss InterCooperation	bina.khanal@helvetas.org.np

3	Harshana Shrestha	Watershed Management, Water Resource Modelling	HELVETAS- Swiss InterCooperation	harshanashrestha@gmail.com
4	Mausam Mainali	Small Irrigation Sector, Trail Bridge	HELVETAS- Swiss InterCooperation	mausam.mainali@helvetas.org.np
5	Dikshya Maharjan	Road Bridge Sector	ITECO Engineering	dikshya.maharjan980@gmail.com
6	Prati Giri	Road Bridge Sector	ITECO Engineering	giriprati@yahoo.com
7	Sanju Shrestha	Road Bridge Sector	ITECO Engineering	sanju_sht@yahoo.com
8	Rubi Karna	Rural Roads Sector	ITECO Engineering	rubbikrn002@gmail.com
9	Sangita Gautam	Rural Roads Bridge Engineer	ITECO Engineering	sangita.gautam@lrbpnepal.org

A Warm Welcome from Nepal

Harshana Shrestha
26 June 2015

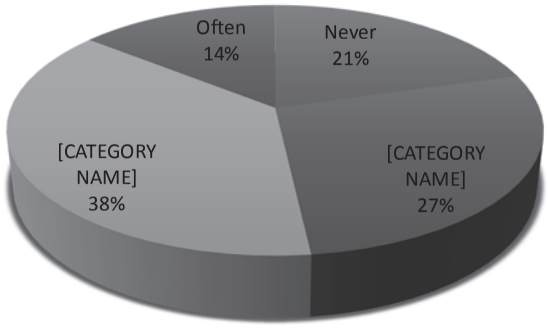
Activities conducted in 2014

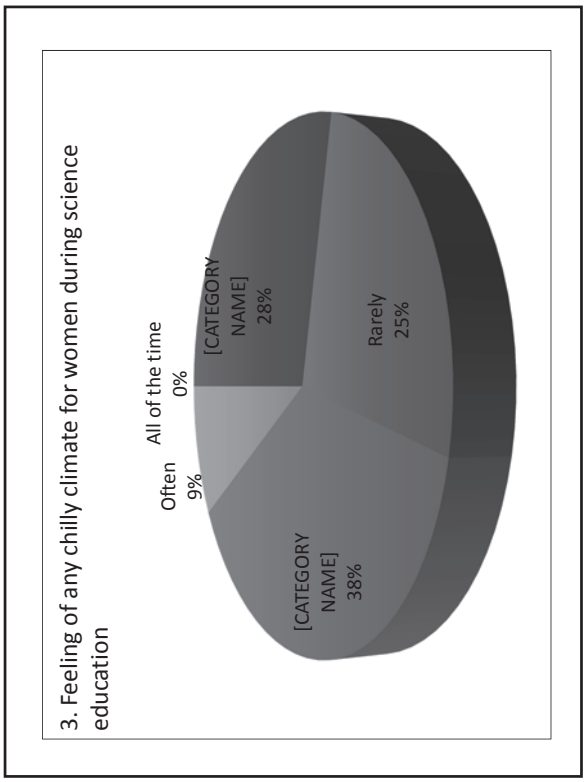
1. Country Status Report on Gender Inequality Survey
2. One day Workshop on STEM sector among Grade 9 and 10 Students

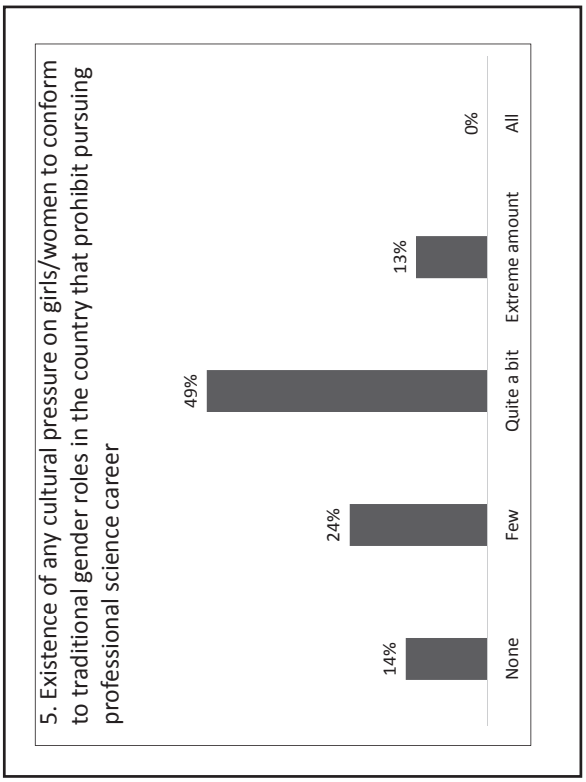
Major Findings from Gender Inequality Survey for Science and Engineering Professionals

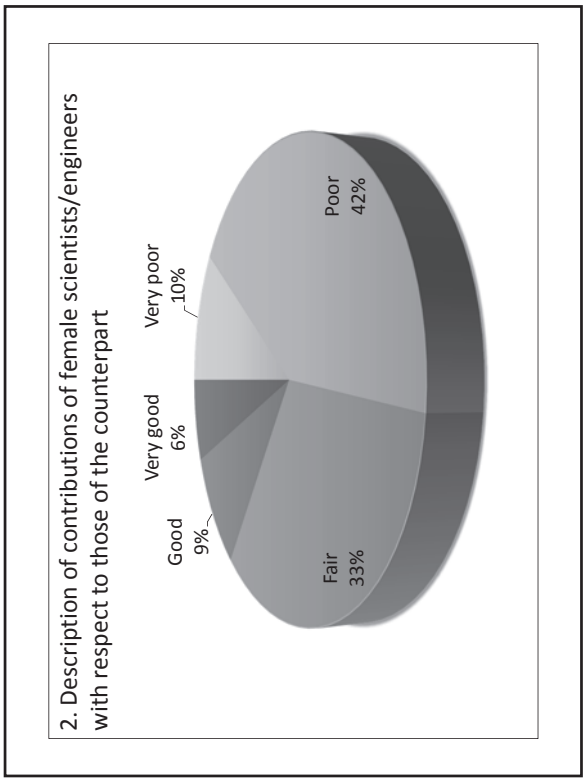
- Respondents: 112 randomly selected Science and Engineering Professionals
- Method: Questionnaire Survey
- Ages of Respondent varied from 21 years to 50 years

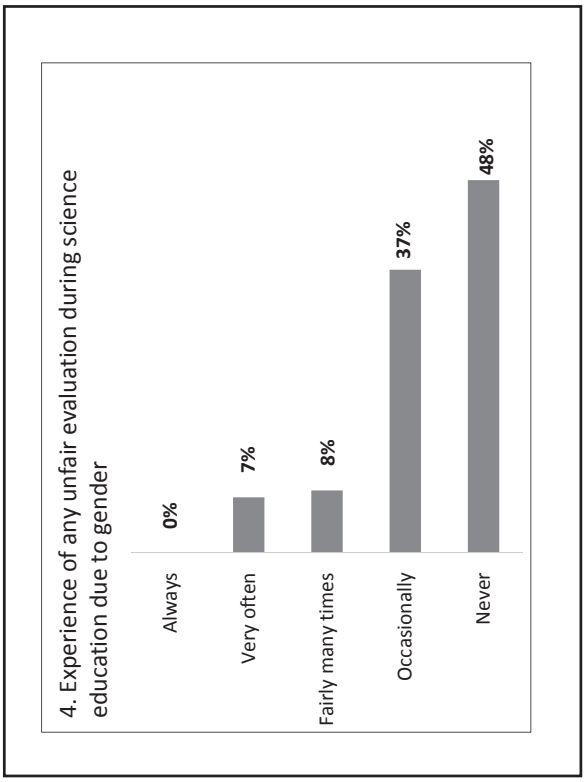
1. Chance of identifying any female role model as a scientist/engineer during science/engineering education



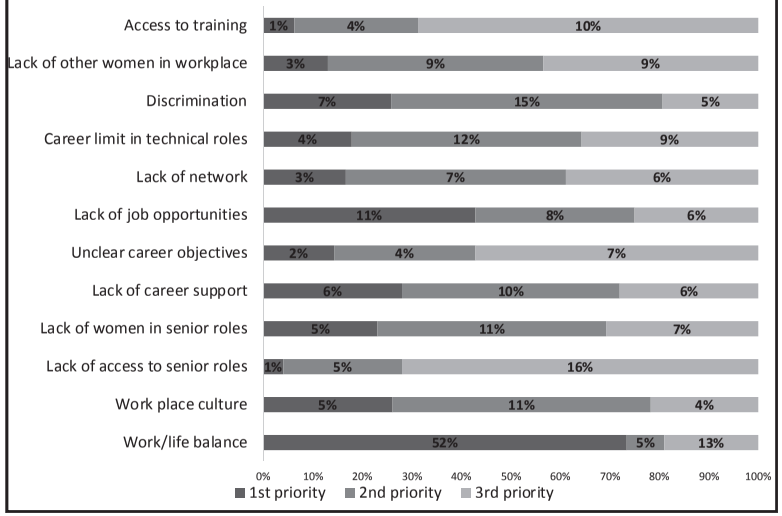

3. Feeling of any chilly climate for women during science education
All of the time 0%
Often 9%
[CATEGORY NAME] 28%
Rarely 25%
[CATEGORY NAME] 38%


5. Existence of any cultural pressure on girls/women to conform to traditional gender roles in the country that prohibit pursuing professional science career
14%
24%
49%
13%
0%
None
Few
Quite a bit
Extreme amount
All


2. Description of contributions of female scientists/engineers with respect to those of the counterpart
Very good 6%
Very poor 10%
Good 9%
Poor 42%
Fair 33%


4. Experience of any unfair evaluation during science education due to gender
Always 0%
Very often 7%
Fairly many times 8%
Occasionally 37%
Never 48%

6. The most significant difficulties as a female science/engineering professional in the country



Major conclusion drawn from the survey results

- The most appreciative part found by the survey is:
  - Very less percentage of women found unfair evaluation during their study in STEM sector.
- Few results that does not helps much in pursuing STEM as a career:
  - A significant number of respondent (37%) **Sometime** found female role model during their science and engineering education,
  - Only 6% respondent found **Very good** contribution of female scientist/engineers with respect to those of the counterpart,

Major conclusion drawn from the survey results

- About 38% of women professionals still have feeling of any chilly climate for women during science education,
- 62% respondent found **extreme hurdle** due to cultural pressure to conform traditional gender roles
- And the most importantly, a large number of women in this profession struggling for work life balance

Country Report 2015

New Zealand

Institution of Professional Engineers in NZ (IPENZ)

2015 APNN Country Report of New Zealand

Name of Country	New Zealand	
Organization representing your country	Official Name	Institution of Professional Engineers New Zealand (IPENZ)
	Address	PO Box 12 241, Wellington 6144, New Zealand
	Homepage	www.ipenz.org.nz
	Telephone no.	+64 4 473 9444
	Members	16,000 engineers, engineering technicians and technologists including engineering students, practising engineers and senior Members in positions of responsibility in business.
	Main activities	The IPENZ women in engineering programme supports the recruitment, retention and advancement of female engineers through: • Delivery of a schools programme (called Futureintech) • Mentoring • Networking events which are co-hosted with the National Association of Women in Construction and the Institution of Civil Engineers New Zealand and other organisations / professional bodies where appropriate • Information sharing with other professions, and the Ministry for Women Affairs and other organisations promoting diversity and encouraging retention of professional women in the workplace • Research of issues affecting minority groups • Proactively engaging with chief executives of engineering firms to encourage them to support female engineers • Profiling successful female engineers and organisations supporting diversity in IPENZ publications Looking more broadly, IPENZ is the professional body for the engineering profession (all disciplines) in New Zealand, and the Registration Authority for Chartered Professional Engineers. The Registration Authority is embodied in New Zealand Statute, (The Chartered Professional Engineers of New Zealand Act 2002). In these roles IPENZ provides services for its members, who are classified into various

		membership classes according to their levels of competence. The Institution sets internationally bench-marked qualifying standards for university degree qualifications in engineering. IPENZ encourages and assists continuing professional development, and provides awards and scholarships that recognise achievement. It also represents engineers' interests with government, provides contact with other professionals. IPENZ promotes public debate on engineering issues in the community, and seeks to contribute, on behalf of the engineering profession, to the resolution of issues affecting the wider community. IPENZ is governed by an elected Board, chaired by the President and including eleven other members.
	Goals/other information	IPENZ goal for women in engineering is that: "As a result of its diversity, engineering is seen as making a highly relevant contribution to New Zealand's economic growth and well-being. The engineering profession is recognised as an employer of the best and brightest. Engineering workplaces are diverse and have exemplary employment practices. The number of engineers is sustainable in the long term."
Representative of Organization	Name	Tracey Ayre
	Affiliation & Address	Project Manager – Women in Engineering, IPENZ
	E-mail	tayre@ipenz.org.nz
Names of other organizations for women in your country		Royal Society of New Zealand National Association of Women in Construction Institution of Civil Engineers Women in Trades Connexis National Council of Women Women on Boards Ministry for Women EEO Trust Global Women Association for Women in the Sciences

1. Current Status in network of women engineers and scientists since last year

IPENZ continues to host Connect events. These events are hosted by IPENZ, the Institution of Civil Engineers (NZ Branch) and the National Association of Women in Construction. The events are held to enable female engineers to network, hear inspirational speakers and share their experiences. While held mainly to benefit female engineers, male engineers are also welcome to attend.

IPENZ is also partnering with the Hutt City Council to deliver a women in engineering breakfast in June to bring together professional female engineers, university students and school students.

2. Best practices of networking of women engineers and scientists in your country

Networking specifically for female engineers is discussed above in 1. All IPENZ Members are members of a Branch (based on where they live) and IPENZ Branches host events, enabling engineers in a geographic area to network.

Some engineering organisations (particularly the larger consultancies) have developed diversity councils or groups interested in diversity. Some of these organisations have hosted diversity-related workshops and lunchtime seminars which enable engineers within an organisation to network and share experiences and ideas.

Professionelle also hosts events for professional women. Professionelle is a charitable trust which offers professional development for working women. For more information see http://www.professionelle.co.nz/

3. Suggestion for future network in your country or all over the world

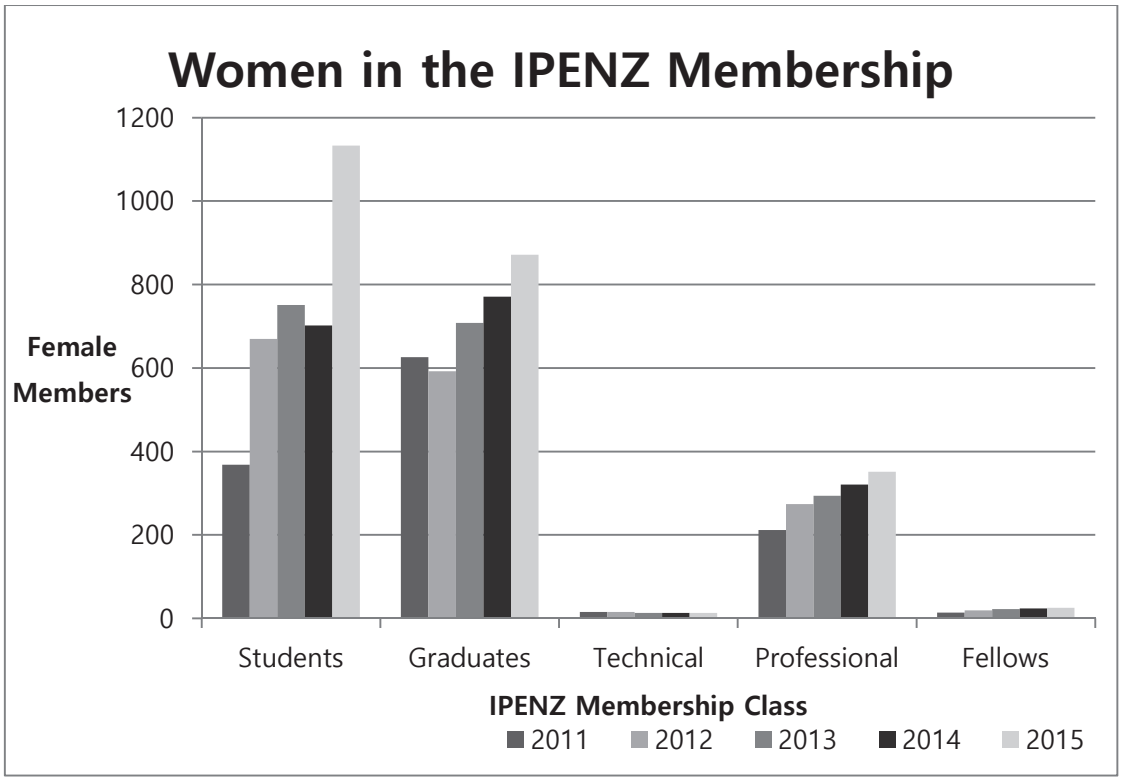
As suggested in our 2014 report, we believe there may be merit in the APNN collaborating with the WFEO's Women in Engineering Standing Committee.

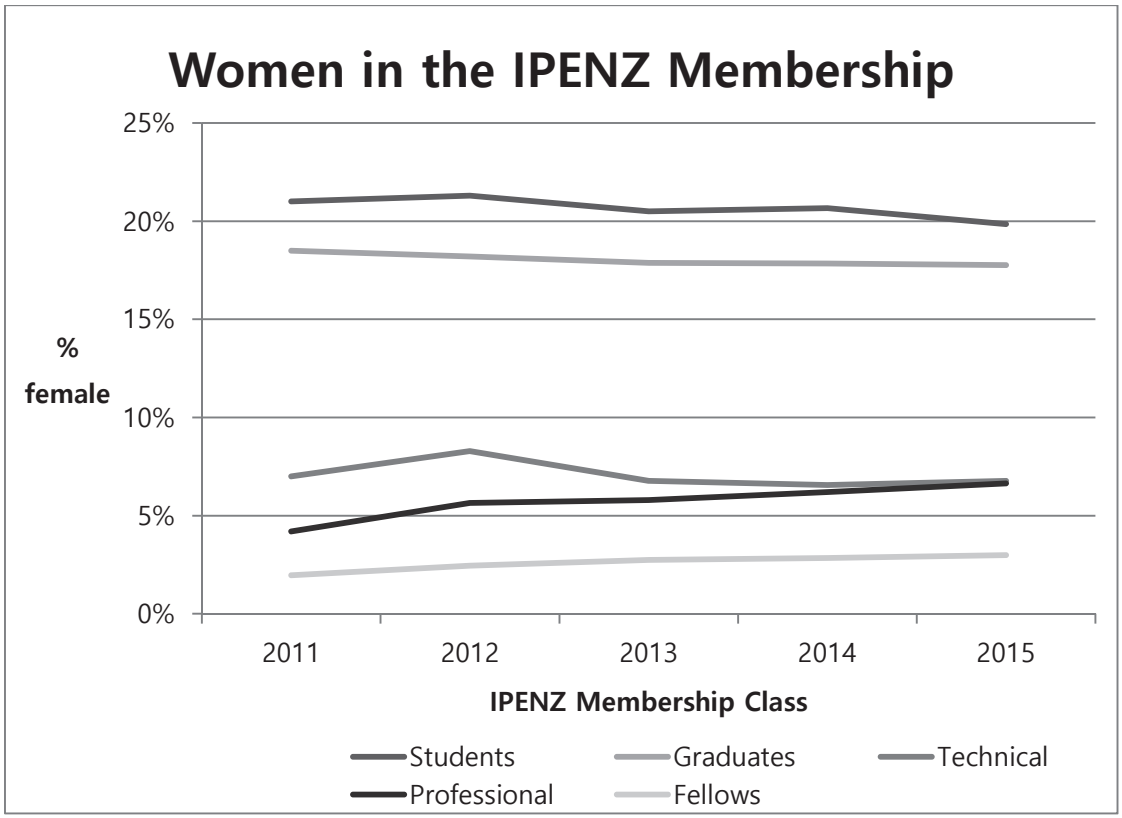
4. Detailed information of members: This information could be helpful when women engineers and scientists want to collaborate with someone working in specific areas. Providing an email address is optional.

	Name	Work/research area	Affiliation	Email (optional)
1				
2				
3				
4				
5				

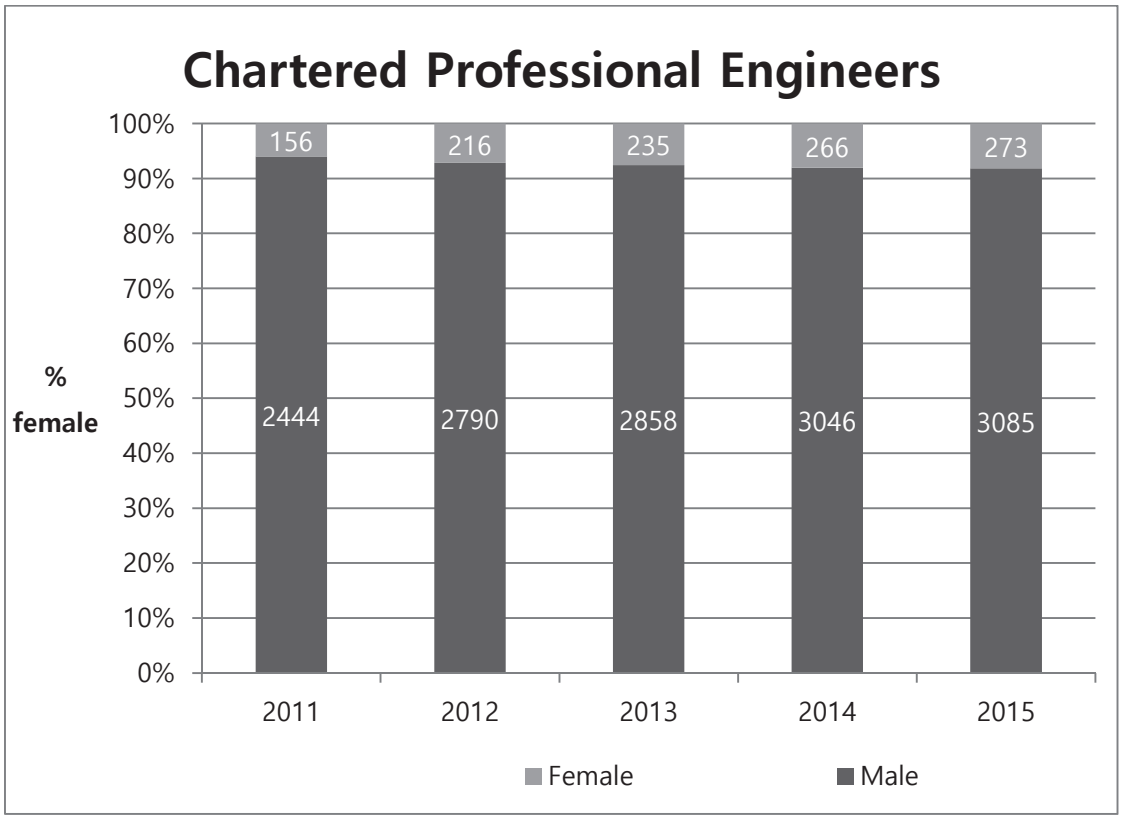
6				
7				
8				
9				
10				

For privacy reasons IPENZ cannot provide details of individual Members. Information on the IPENZ Membership is provided below.





As noted earlier in this report, IPENZ is the Registration Authority for Chartered Professional Engineers. The number of male and female Chartered Professional Engineers is presented below.



Country Report 2015

Sri-Lanka
Women in Science and Engineering in Sri Lanka
(WISE Sri Lanka)

2015 APNN Country Report of Sri Lanka

Name of Country	Sri Lanka	
Organization representing your country	Official Name	Women in Science and Engineering (WISE) Sri Lanka
	Address	No 5, Lionel Edirisinghe Mawatha Colombo 5
	Homepage	Under construction
	Telephone no.	0094716061257
	Members	
	Main activities	Promoting and organizing activities to increase pass rate and participation in Science and Mathematics at the year 11 examination (General Certificate of Education- Ordinary Level) with a special focus on schools with minimum facilities in Sri Lanka
	Goals/other information	Women in Science and Engineering Sri Lanka is a professional platform for women in Science, Engineering and Mathematics (+/- to attain their full potential.) Vision: Women in Sri Lanka are confident to be educated in any sphere of science and technology and are active professionals in the fields of their training. They have the capacity to take part in providing solutions and making decisions important to the country and its citizens. Mission: To enhance professional and social development opportunities for women by creating a support system and an active dialog focusing on issues unique to women in science and engineering.

Representative of Organization	Name	Ms. Nethra Tantrigoda Secretary WISE SL
	Affiliation & Address	Women in Science and Engineering (WISE) Sri Lanka No. 5, Lionel Edirisinghe Mawatha, Colombo 5, Sri Lanka
	E-mail	srilanka.wise@gmail.com
Names of other organizations for women in your country		Center for Women's Studies, Women in Need

1. Current Status in network of women engineers and scientists since last year

1. WISE Sri Lanka has grown since 2014; the first Annual General Meeting of WISE Sri Lanka was held in March 2015. Its active membership doubled from about 6 to 12.

2. Was able to initiate a pilot project with a rural school with minimum facilities in a poverty prevailing area in Sri Lanka. The school is in a village called Gambirigaswewa in Anuradhapura district (North Central Province), where high incidence of CKDu (Chronic Kidney Disease of unknown etiology) prevails.

   WISE Sri Lanka provided food as incentives for children to come to school. Further books and other school material were provided for children and teaching support material for school teachers specially focusing on the students due to sit for the year 11 examination (General Certificate of Education- Ordinary Level). Mentoring program for students and teachers pilot program done on 6/4/2015.

3. The pilot project also helped to collect information/data about disadvantaged children and their education, which WISE Sri Lanka will analyze and use in planning its future activities.

4. Produced a newsletter. Website is currently under construction.

2. Best practices of networking of women engineers and scientists in your country

1. Initially our main aim was to increase the membership, because we felt that substantial number in the membership is important to commence work.

   While we managed to get members, we found that it is a challenge to have active members. We decided that we will not worry about number of members and work with the few who are active and committed and build on the membership as we move ahead. We have a small number as active members and therefore at present it is easy to conduct work in an informal manner which helps to move things along while monitoring quality.

2. It was easier to get member's commitment around an activity.

   The pilot project was initiated solely based on members' financial and time commitments. We managed to mobilize much more resource material for school children than we expected with contribution from other outside parties.

3. Successful outcomes of the pilot project has become a motivation for the small

group of membership as we feel we can now aim for slightly bigger initiative and attract few more worthy members.

3. Suggestion for future network in your country or all over the world

1. We plan to review the pilot project and work out a plan to improve it to be able to better capture results. While the current pilot project is working on improving education of children in a highly deserving school, complexity in the context makes it difficult to show educational improvement unless their overall poverty context improves including situation with CKDu. We plan to target school with fewer complexities while continuing to support the same school.
2. WISE Sri Lanka also plans to launch its website, produce 2nd Newsletter for 2015 and present analysis of data gathered through the pilot project in an appropriate conference.
3. Our long term goals include
   - raising funds to support and bring our ongoing projects to a higher level
   - capacity building and promoting research activities in the working population of women scientist and engineers
   - start a scholarship program for girls having good results but financially are unable to continue higher education in fields of STEM
   - improving communication with INWES/WISE members worldwide.

4. Detailed information of members: This information could be helpful when women engineers and scientists want to collaborate with someone working in specific areas. Providing an email address is optional.

	Name	Work/research area	Affiliation	Email (optional)
1	Dr. Vishaka Hidellage	Environment & Development	UNDP	visaka.hidellage@undp.org
2	Dr. Thlina Wanigasekera	Human Genetics	National Hospital of Sri Lanka	thilinaw71@yahoo.com
3	Ms. Kanchana Wijenayake	Food Science and Nutrition	Janathakshan	kanchanawijenayake@gmail.com
4	Ms. Mega Ganeshan	Environment & Wildlife	Linea Aqua (Pvt) Ltd	wildmega@gmail.com

		Conservation		
5	Ms. Nethra Tantrigoda	Molecular Biology	Industrial Technology Institute	nethrah85@gmail.com
6	Ms. Gajani Baskaran	Telecommunications	Linea Aqua (Pvt) Ltd	bgajani9@gmail.com
7	Ms. Uttara Gunasinghe	Psychology		utz199360@gmail.com
8	Ms. Shanika Amarasinghe	Bioinformatics		shani.amarasinghe@yahoo.com
9	Ms. Lakshitha Edirisingha	Civil Engineering		lakshithakdaw@gmail.com
10	Ms. Gavini Liyanaarachchi	Natural product chemistry	Industrial Technology Institute	gdikhushi@yahoo.com
11	Ms. Suganeya Sivapalan	Stem cell Biology		suganeya123@hotmail.com
12	Ms. Upekha Senarathna			upekhasenarathna@gmail.com

Country Report 2015

Taiwan

Society of Taiwan Women in Science and Technology (TWiST)

2015 APNN Country Report of Taiwan

Name of Country	Taiwan	
Organization representing your country	Official Name	the Society of Taiwan Women in Science and Technology (TWiST)
	Address	Department of Chemistry, Tamkang University Tamsui, Taiwan 25137
	Homepage	http://twist.org.tw/
	Telephone no.	886-2-2625-7687
	Members	180+
	Main activities	1. Annual meeting of all members. 2. Publication of E-Journal monthly. 3. Biannual symposium with other women scientist groups. 4. Seasonal gatherings among local members. 5. Scholarships for young female scientists. 6. Mentor-Mentee programs for members as well as friends of members
	Goals/other information	1. Encouraging and nurturing women to engage in STEM fields. 2. Promoting the status of women scientists. 3. Networking among women scientists with information exchange. 4. Networking with international women's groups.
Representative of Organization	Name	Chia-Li Wu
	Affiliation & Address	Department of Chemistry, Tamkang University Tamsui, Taiwan 25137
	E-mail	clwuster@gmail.com
Names of other organizations for women in your country (STEMM fields)	1. Taiwan Medical Women's Association(http://www.tmwa.com.tw/) 2. Women in Nuclear, Taiwan. (Chinese version: http://wintaiwan.chaohsi.com/home/jian-jie, English version: http://wintaiwan.chaohsi.com/home/aboutus)	

	3. Committee of Women Physicists in Physical Society, ROC. (http://psroc.phys.ntu.edu.tw/cwip/main.php) 4. Committee of Women Chemists in Chemical Society located in Taipei (http://fem.chemistry.pu.edu.tw/index.htm 5. Women in Free and Open Source Software in Taiwan (http://www.wofoss.org/) 6. Py ladies (http://tw.pyladies.com/) 7. JS Girls: (http://girldevelopit.github.io/gdi-core-javascript/class1.html#/) 8. Django Girls Taipei (http://djangogirls.org/taipei/) 9. Rails girls(http://railsgirls.tw/) 10. Anita Borg Scholarship Alumini Community (https://www.facebook.com/pages/Anita-Borg-Scholarship-Alumni-Community/261363020730608)

1. Current Status in network of women engineers and scientists since last year

The membership of TWiST has grown to more than 180. About 77% of our members are from academia, and 17% from industry. Their major fields could be classified as follows:

Natural Sci.	Applied Sci.	Math/ Computer	Medical Sci.	Life Sci.	Engineering	Science Educ.	Business & Management	Social Sci.	Others	Total percentage
25.9	5.0	8.5	11.4	10.4	16.9	7.5	4.0	5.5	5.0	100%

2. Best practices of networking of women engineers and scientists in your country

- Publishing monthly E-Journal for women scientists and technologists. The distribution has increased to 14,000 subscribers including male professors.
- Monthly small gatherings—could be any activity, such as a meal, an afternoon tea, a hiking, a lecture, or even watching movie together.
- Joint symposium or forum for Women Scientists for one day or two half days. This year the Joint Symposium for Women Physicists and Chemists will be held on Nov. 21-22.
- Lunch Meeting for women scientists or engineers in an Annual Meeting of an academic society, such as Chemical Society, Physical Society, Mathematical Society, etc.

3. Suggestion for future network in your country or all over the world

- Push and promote more lunch meetings for women scientists or engineers in the Annual Meetings of bioscience, medical, pharmaceutical as well as engineering societies.
- Expand the stay-overnight biannual symposium to all scientists and engineers at a scenery spot so as to build a better network among all fields of women locally.
- INWES Newsletter could have a special column for news or ideas or new publications from individual members so as to strengthen the affinity among all members internationally.

4. Detailed information of members: This information could be helpful when women engineers and scientists want to collaborate with someone working in specific areas. Providing an email address is optional.

#	Name	Work/research area	Affiliation	Email (optional)
1	Chia-Li Wu	Gender and Science/Plant Chemistry	Tamkang University	clwuster@gmail.com
2	Huey-Chuen Kao	Chemistry	Tamkang University	kaohci@gmail.com
3	Chun-Mei Lu	Chemical and Materials Engineering	National Chin-Yi University of Technology	lucm@ncut.edu.tw
4	Fang-Fei Chou	Chemistry	Taipei First Girls High School	fangfei7680@yahoo.com.tw
5	Jauyn Grace Lin	Condensed matter physics	Center for Condensed Matter Sciences, National Taiwan University	jglin@ntu.edu.tw
6	Wen-ling Hong	Engineering	National Kaohsiung Marine University	wenlinghong@gmail.com
7	Hung-Ju Kuo	Mathematics	National Chung Hsing University	kuohungju@gmail.com
8	Hui-Ling Tsai	Dentistry		huiling858209@yahoo.com.tw
9	Li-Ling Tsai	Gender & Science	National Kaohsiung Normal University	liling@nknu.edu.tw
10	Tsai-Yueh Luo	Radiopharmaceutical Research	Institute of Nuclear Energy Research	tylo@iner.gov.tw
11	Shun-Lien Sung	Industry pharmacy regulatory science	MRS MICRO-WORK Co. Ltd.	mrs.micro.work@gmail.com
12	Ming-Fong Tai	Physics	National Tsing Hua University	mftai@phys.nthu.edu.tw
13	Mi Chen	Chemical and Materials Engineering	Minghsin University of Science and Technology	chenmi@must.edu.tw

14	I-Jy Chang	Chemistry	National Taiwan Normal University	changijy@ntnu.edu.tw
15	Ching Cheng	Physics	National Cheng Kung University	ccheng@mail.ncku.edu.tw
16	Jessie J. Chiu	Nuclear Energy	The Atomic Energy Council	chiujj@gmail.com
17	Li-Chyong Chen	Condensed Matter Physics	Center for Condensed Matter Sciences, National Taiwan University	chenlc@ntu.edu.tw
18	Kang C. Jea	Computational Mathematics	Fu Jen Catholic University	kcjea2002@gmail.com
19	Chueh Chang	Public Mental Health, Women and Health	1.College of Public Health, National Taiwan University 2. Mental Health Association in Taiwan	chueh@ntu.edu.tw

1

2015 Asia and Pacific Nations Network
Country Report

The Society of Taiwan Women in Science and Technology (TWiST)

Chia-Li Wu

Professor, Emeritus
Dept. of Chemistry
Tamkang University
Tamsui, Taiwan

President
the Society of Taiwan Women in Science and Technology (TWiST)

http://twist.org.tw/

1

Goals

- Encouraging and nurturing women to engage in STEM fields.
- Promoting the status of women scientists.
- Networking among women scientists with information exchange.
- Networking with international women's groups.

2

Founding Conference on Oct. 30, 2011

Member Field Classification		
分類項目 Classification	人次 No.	百分比 %
自然科學 Natural Science	52	25.9%
醫藥/生命科學 Medical & Life Science	44	21.8%
工程 Engineering	34	16.9%

183 members

4

Main activities

5

Taiwanese Female Scientists & Technologists
Monthly E-Journal
since 2008

性別與科技新聞 | 特寫與群像 | 科技人論壇 | 科技會議與活動報導
性別與科技論文/書籍簡介 | 事求人˙人求事 | 相關網站連結

>14,000 distributions

6

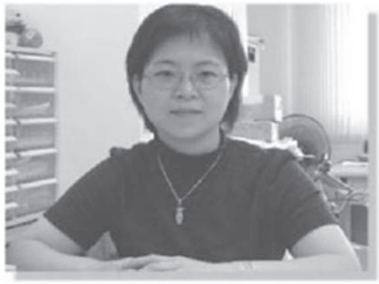
Women Scientist Profile/every other month

Prof. Chang from Math Dept.

所做」。我年輕時在研究方面衝刺，一篇論文
為該領域的 milestone papers之一，也當過國際
所長、系主任、院長一共忙了15年。在教學與
是做我所喜歡的事，同時也熱愛我所做的人與

7

Prof. Hong from Precision Engineering Institute



子女之教育態度採自由開放；
體驗『脫貧之唯一路徑即是用功念
自己開闢一片天』，讓我從小於不

8

Miss Lin/A Science Teacher

市，並且已退休8年，回憶剛當老師
老師，她媽媽要到學校來「求證」。
亞德州某高中的男校長說：「要特別
媽媽對小孩的影響是非常重要的。」
主重女生的科學教育。……(閱讀全

9

Dr. Zhan/ President of a Pharmaceutical Co.

擊突然冒煙熄火，司機催促大家趕
機會在上面行走，趕快拍照留念。
凡事樂觀以待，有機會一定要把

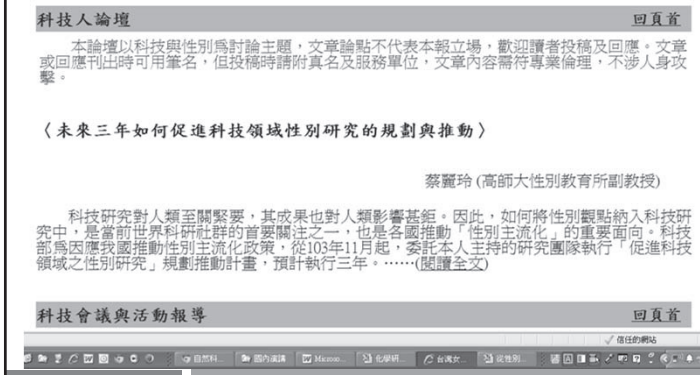
10

Group Profiles of Women Scientists/ every other month

- 淡水竹圍高中自然科專任教師陳玉娟老師；
- 亞東紀念醫院企劃處邱琦皓組長；
- 力譔堂整合行銷股份有限公司魏祥瑜；
- 清華大學博士生夏琳同學；
- 交通大學應用化學所博士生張亦諄同學；
- 清華大學材料科學工程研究所碩士生陳芙蓉同學。

11

Scientist Forum /every issue



科技人論壇 回頁首

本論壇以科技與性別爲討論主題，文章論點不代表本報立場，歡迎讀者投稿及回應。文章或回應刊出時可用筆名，但投稿時請附真名及服務單位，文章內容需符專業倫理，不涉人身攻擊。

〈未來三年如何促進科技領域性別研究的規劃與推動〉

蔡麗玲 (高師大性別教育所副教授)

科技研究對人類至關緊要，其成果也對人類影響甚鉅。因此，如何將性別觀點納入科技研究中，是當前世界科研社群的首要關注之一，也是各國推動「性別主流化」的重要面向。科技部爲因應我國推動性別主流化政策，從103年11月起，委託本人主持的研究團隊執行「促進科技領域之性別研究」規劃推動計畫，預計執行三年。……(閱讀全文)

科技會議與活動報導 回頁首

12

Scholarships for Young Women Scientists

No. of Awardees

- 2012—2
- 2013—5
- 2014—3
- 2015—4

- USD 350–1000/case

14

Scholarships for Young Women Scientists

In application form

- Ever attend any gender course/activities?
- Your opinions/observations from a gender perspective

In report

- Gender observation during the symposium

15

Visit to Rwanda Women's Groups

- **Oct. 31-Sept. 6, 2014**
- **Women and Leadership, led by Prof. Randell**
- Gahaya Link – weaving lasting peace
- Village of Hope – Rwanda Women's Network
- Rwanda Men's Resource Center
- Women's Opportunity Center
- AVEGA–Agahozo
- Gashora Girls Academy
- COVAGA及Nyamirambo Women's Center
- Kigali Genocide memorial center
- National Police Health Center

16

After a Forum with Congress Women

17

Visit of a Girls' Academy

18

Seasonal gatherings

- Hold small and local gatherings monthly, such as enjoying gourmet at special restaurants, hiking/field trips, or daily-life related talks given by members.

19

Visit Franz Pottery Co.

March 21, 2015

20

March 21, 2015 21

Discovering Technology Treasures

April 17, 2015 22

April 17, 2015 23

Lecture on Footprints of a New Co.

CEO of Thundersensing Co.

Emergency evacuation

May 23, 2015 24

Lecture on Footprints of a New Co.

May 23, 2015

25

Coming Symposium & Annual Meeting

26

2015 Female Physicists and Chemists Joint Symposium

- Nov. 21-22
- Southgarden, Taoyuan

27

Other Women's Science & Tech. Organizations

- Taiwan Medical Women's Association
- Women in Nuclear, Taiwan.
- Committee of Women Physicists in Physical Society, ROC.
- Committee of Women Chemists in Chemical Society located in Taipei

28

Other Women's Science & Tech. Organizations

- Women in Free and Open Source Software in Taiwan
- Py ladies
- JS Girls
- Django Girls Taipei
- Rails girls
- WikiWomen, Taiwan
- Anita Borg Scholarship Alumini Community

Many Thanks for
Your attention

Country Report 2015

Vietnam

Vietnam Association for Intellectual Women

(VAFIW)

2015 APNN Country Report of VIETNAM

Name of Country	VIETNAM	
Organization representing your country	Official Name	Vietnam Association for Intellectual Women
	Address	*39 Hang Chuoi st. Hai Ba Trung dist., Hanoi city*
	Homepage	http://hoinutrithucvietnam.org.vn/
	Telephone no.	043.9728747
	Members	2.200 members
	Main activities	Vietnam Association for Intellectual Women (VAFIW) is a professional social organization, which works with non-profit purposes. With five professional committees, the existing more than 2,200 members across the country lead by Prof. Dr. Pham Thi Tran Chau as President. Prof. Dr. Nguyen Thi Doan – Vice President of the Socialist Republic of Vietnam is Honorary President of VAFIW. The VAFIW is regarded as the birth roof of Vietnam intellectual women, to create an environment for women to promote intellectual creativity and they can devote more to the overall development of society. With the principle, purpose and action plan have been identified, the Association will contribute to enhancing the position of Vietnamese intellectual women to new heights, the trend of innovation,

		development and international integration. Female intellectuals is as an essential part of women of all nationalities. Vietnamese intellectual women increasingly promote their role and confirm its strong position in the cause of industrialization and modernization of the country and international integration. These are people who not only embodies the wisdom, passion for science, but also embodies the personality of vietnamese women bear feminine character with hard-working, very compassionate.
	Goals/other information	• To unify and mobilize women to bring into full play their inner strengths, to proactively and enthusiastically participate in socio-economic development and national defense; To build happy and sustainable families; To improve women's material and spiritual life. To cultivate patriotism, health, knowledge, working skills, resourcefulness, creativity, cultured lifestyle and kind-heartedness among Vietnamese women. • To build a stronger VAFIW organization, increasing its ability to fulfill its key role in women's activities and gender equality realization.
Representative of Organization	Name	Prof. Dr. Pham Thi Tran Chau
	Affiliation & Address	President
	E-mail	phamthitranchau@gmail.com
Names of other organizations for women in your country		Vietnam Women Union

Current Status in network of women engineers and scientists since last year

VAFIW has been recognised to achieve great achievements for the last year 2014 with the main tasks:

- Providing communication, education and mobilization of women to implement laws and policies, uphold fine virtues and enhance their capacity and awareness.
- Mobilizing and assisting women in nurturing happy and sustainable families.
- Mobilizing and assisting women in economic development, sustainable poverty reduction, and environmental protection.
- Advising, proposing, participating in the development of laws and policies on gender equality and social counter arguments to such laws, and monitoring enforcement.
- Building and developing a stronger VAFIW organization.
- Strengthening international relations and cooperation

The outstanding performance is expressed in many diverse ways:

- Promote the development of member associations, local and abroad
- Draft and execute different scientific research projects on intellectual women in Vietnam
- Accompanying Union Vietnam Women organizing external activities, the creative movement of women
- Suggest and advice policies and laws relating to women, female intellectuals
- Promote propaganda activities by using the various social media as newspapers, internet, national TV, facebook …
- Foster interest and honor the young intellectual women with outstanding achievements, the young intellectuals strive to overcome difficulties in learning and labor. Also accompany social organizations in the philanthropy and community.

There are 4 key projects that we are executing since 2014 as outlined:

(i) Project "The role and position of Intellectual Women in developing sustainable society“

(ii) Project “Vietnam intellectual women with creative activities phase 2”

(iii) Project “Support for advanced knowledge and skills of law propagation and dissemination of Vietnam legal system on the prevention of corruption”

(iv) P72 Winner for Award 2014 inspected by Government and World Bank

1. Best practices of networking of women engineers and scientists in your country

Since 2013, Vietnam Ministry of Sciences and Technology supports a project namely "Women with Intellectual property and scientific research". In 2013, phase 1 of the project has introduced 12 women scientists face with the results of their studies. Thereby, some topics are introduced and achieved very good commercial outcome. From that effect, the Ministry continues to provide funding for phase 2 with the aim of contributing to gender equality in science and technology.

The project "Women with Intellectual property and scientific research" phase 2 is implemented in 2015 by VAFIW under the management of the Ministry of Sciences and Technology and coordination of Vietnam Television, with the aim to creating favorable conditions to support commercialization of research outcomes, with broadcasting on National Television Channel every Sunday in the afternoon.

The goal of the project is through the combination of talk-show and reportage, it aims to promote the research results of intellectual women to contribute to enhancing awareness of gender equality in science and technology activities; while continuing to enhance advanced awareness of intellectual property; creating a bridge to help potential investors seeking faisible investment opportunities, while promoting the intellectual wisdom of women, promote the scientific research in research institutions, universities ...
To make it more useful compared to the phase 1, the approach of phase 2 is based on outcome-oriented, based on the needs of society, the breath of the market, focus on solving each hot social isue, as to avoiding to waste resources.

12 topic get more attention from the community and social impact because there are really hot issues that the society is facing. We can cite here:

(i) Preserve youth

(ii) Clean food and sustainable development problems

(iii) Physical health and height for Vietnamese people

(iv) Biotechnological applications in environmental protection

(v) How to maintain herbal pharmaceutical sources

(vi) Copyright issues in culture and art business

(vii) Biotechnology development in Vietnam

(viii) Enhance the competitiveness of enterprises VN during integration

(ix) Disease prevention research, vaccine production

(x) Renew living environment

(xi) Recovery solution for soil fertility serving sustainable agricultural development

(xii) Improvement of soil fertility and crop yields

2. Suggestion for future network in your country or all over the world

(i) In Vietnam:

VAFIW uses many different methods to track the advancement of our mission and the success of our programs related to women in the workplace, women enrolling in engineering and a variety of resources available for those interested in diversity initiatives.

VAFIW divides our members into different branchs. Each branch represents as an agent of change in specific sectors that they are proffesional. Their values and behavior permeate everything this sub-group does and represents. Consequently, to foster success for women in science and engineering, it is essential that all members consider their own impact on women in these fields to shape women's careers. Most members want to be a positive influence so it is important to understand the types of behavior that can make a difference.

The slow progress of women through the academic science and engineering leadership ranks is a matter of national concern. Certainly, VAFIW in cooperation with academic institutions must do their part by enacting the policies, programs, and procedures that will allow women to reach their full

potential in science and engineering careers. Becoming more aware of the many ways, small and large, that our individual actions and advocacy can help to keep women in STEM pipeline will not only be a boon to the individuals you affect, but also to the continued scientific and engineering progress of our country.

(ii) In Asia and the Pacific and worldwide:

VAFIW commits to strengthen international relations and cooperation in the short and long term. VAFIW's international cooperation activities are diversified in forms such as participating in forums, signing and implementing the cooperation agreements/MoU, exchange of visits, participating and contributing comments/ ideas at conferences and workshops on various topics. These activities have contributed actively to open new bridge for intellectual women.

3. **Detailed information of members:**

This information could be helpful when women engineers and scientists want to collaborate with someone working in specific areas. Providing an email address is optional.

	Name	Work/research area	Affiliation	Email (optional)
1	Prof.Dr. Pham Thi Tran Chau	Biochemistry	President VAFIW	<phamthitranchau@gmail.com>
2	Prof.Dr. Phan Thi Kim	Food safety	Vice President VAFIW	
3	Asso.Prof.Dr. Nguyen Thi Hoe	Paint engineering	Vice President VAFIW	
4	Asso.Prof.Dr. Phan Thi Tuoi	Polytechnics	Vice President VAFIW	
5	Asso.Prof. Le Mai Huong	Chemistry, Natural compounds	Member of VAFIW Steering	lehuong1258@gmail.com

			Committee	
6	Dr. Nguyen Thi Doan Lieu	Trading, Social sciences	Deputy Head of Sciences and Technology Division, VAFIW	doanlieutm@yahoo.com
7	Asso.Prof.Dr. Le Thi Hop	Nutritions, food safety	Member of VAFIW Steering Committee	lethihop@viendinhduong.vn
8	Prof.Dr. Nguyen Thi Tram	Agriculture	Member of VAFIW Steering Committee	nttramnn1@gmail.com
9	Dr. Bui An Ninh	Cultural arts, IP rights	Head of Arts-Culture Division, VAFIW	anvien48@gmail.com
10	Dr. Phan Thi Thuy Tram	Social creative entrepreneuship	Member of VAFIW Steering Committee	thuytram.phan@gmail.com

VIETNAM ASSOCIATION FOR INTELLECTUAL WOMEN

2014 REVIEW

SPRING MEETING with VICE PRESIDENT OF VIETNAM
February 2015

1. Project "The role and position of Intellectual Women in developing sustainable society"
2. Project "Vietnam intellectual women with creative activities phase 2"
3. Project "Support for advanced knowledge and skills of law propagation and dissemination Vietnam legal system on the prevention of corruption"

EXTERNAL COOPERATIONS

Asia and Pacific Nations Nework Meeting -APNN
Meeting of Asia & Pacific Women in Science & Technoloy-MAPWIST
Young Women Scientist Camp July 2014

INTERNATIONAL CONFERENCE ON ECONOMIC ZONES
March 2014

VIETNAMESE WOMEN ENTREPRENEURS FORUM
20 Nov 2014

VIETNAM WOMEN AWARD 2014
October 2014

Honorary and Gold Award for typical intellectuals
Vietnam
April 2014

PARTNERSHIP & SPONSORSHIP

Seminar "Solutions for improving the role intellectual Women in Science and Technology activities period 2015-2020"
May 2014

PARTNERSHIP & SPONSORSHIP

Seminar on "Methods seeking science and technology information, commercialization of research results and access to Fund Development
October 2014

PARTNERSHIP & SPONSORSHIP

Workshop on "experience sharing on capacity building of women cadres"
November 2014

PARTNERSHIP & SPONSORSHIP

HONOR CEREMONY "VIETNAM WOMEN – CONFIDENCE FOR BETTER FUTURE
20 October 2015

COMMUNITY CARING

Charity Program to help island solders to plant and growth vegetables

COMMUNITY CARING

SPONSORSHIP FOR
"SUNRISE FOR U FOUNDATION"SUPPORT AUTISM

PARTNERSHIP & SPONSORSHIP

SUNRISE FOR YOU FOUNDATION
LAUNCHING CEREMONY

INTRODUCTION ON PROJECT

INTELLECTUAL VIETNAM WOMEN WITH CREATIVE ACTIVITIES

Phase 2 for 2015

Signing Ceremony with Vietnam Television

Press Conference on March 2015

12 TOPICS OF THE PROJECT

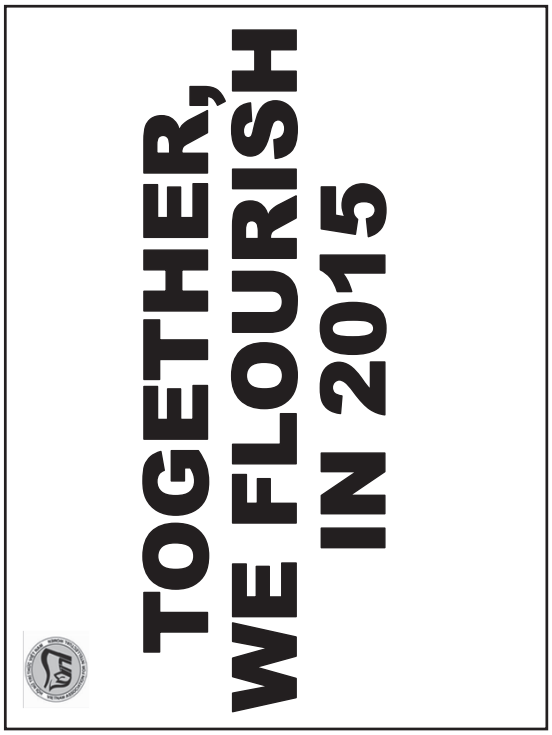
INTELLECTUAL VIETNAM WOMEN WITH CREATIVE ACTIVITIES

1. Preserve youth
2. Clean food and sustainable development issues
3. Biotechnological applications in protecting environment
4. Biotechnology development in Vietnam
5. How to maintain herbal pharmaceutical sources
6. Copyright issues in culture and art business
7. Enhance the competitiveness of enterprises VN during integration
8. Physical health and height of Vietnamese people
9. Disease prevention research, vaccine production
10. Improve productivity in agriculture
11. Renew living environment
12. Improvement of soil fertility and crop yields

Conference to review and demonstrate VAFIW activities


PHILANTHROPY/COMMUNI
TY
LEGAL ADVISORY
EXTERNAL
COOPERATION
SEMINAR/CONFEREN
CE
PROJECTS/PROGRA
MS


TOGETHER,
WE FLOURISH
IN 2015


TOGETHER,
WE FLOURISH
IN 2015


NEW
OFFICIAL
MEMBERS

THANK YOU

VIETNAM ASSOCIATION FOR INTELLECTUAL WOMEN

APNN2015

AGM

APNN Annual General Meeting

Kayoko Sugahara
INWES Board Member, APNN Chair

Chronicle of APNN is as following,
1st APNN was hold in July 19 2011, Adelaide Australia(during ICWES15).
2nd APNN was hold in June 13 2012, Kuala Lumpur Malaysia (during WiSET hosted by IEM)
3rd APNN was hold in September 14 2013, Taipei Taiwan (during IConWIST hosted by Twist)
4th APNN was hold in July 20 2014, Seoul Korea (during MAPiST hosted by KWSE).
5th APNN was hold in June 25 2015 Ulaanbaatar Mongolia (during ICWSTEM)

2015 APNN Annual General Meeting was hold, chaired by Kayoko Sugahara, who is current APNN chairperson. 7 country representatives attended (Mongolia, Japan, Korea, Taiwan, Malaysia, Vietnum, Nepal) out of 12 APNN countries. 5 countries representative could not attended. (India, Australia, New Zealand, Sri Lanka, Pakistan).

Chair note that 2015 APNN report book will be sent by hard copy by end of 2015. In addition, at same time, PDF format of APNN report book will be sent by e-mail.

Two topics were discussed. One is candidate of next year 2016 APNN host country. By then, there was only one proposal from IPENZ in New Zealand. Chair explained the proposal of IPENZ and discussed about registration fee, travel fee, etc. Finally she asked voting all representatives and all of them agreed the proposal of IPENZ as 2016 APNN host country (with proxy of New Zealand and Australia).

As second topic, Dr. Hyang Sook Yoo who is former APNN chairperson, to make APNN more active in building the network among APNN members, proposed that we need to have systematic plans to intensify our relationships. For actual work, we agreed to develop four programs and responsible team.

1. Exchange/visiting program (WSTEM)
2. Empowering/education program (KWSE)
3. Gathering program (TWiST)
4. Gender equality/governmental act (WE-Malaysia and Vietnam)

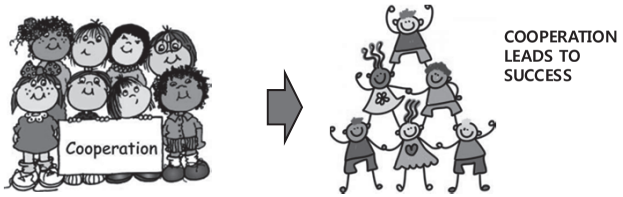
Each responsible team will be expected to have draft plan by end of 2015 and exchange the draft plans and revise during the early next year. They will present the detailed program at the meeting in New Zealand next year, 2016.

APNN working group action plan

2015. 7.27.

Hyang-Sook Yoo
KWSE

➢ Networking of Women Scientists & Engineers



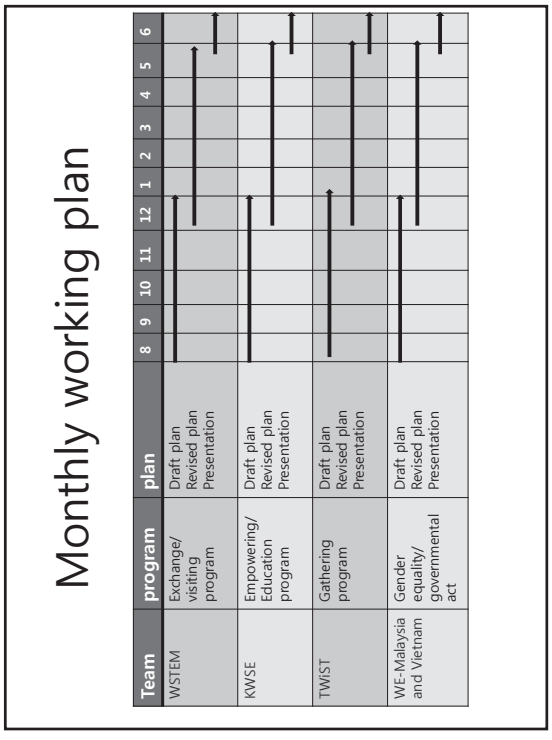
Connect –educate-empowered
young generation for equalized future

Building network

- To be more active in building the network among APNN members, we need to have systematic plans to intensify our relationships.
- For actual work, we agreed to develop four programs:
  1. Exchange/visiting program (WSTEM)
  2. Empowering/education program (KWSE)
  3. Gathering program (TWiST)
  4. Gender equality/governmental act (WE-Malaysia and Vietnam)
- Each responsible team will have detailed plan.

Time frame

- WSTEM, KWSE, TWiST, WE-Malaysia and Vietnam will have draft plan by the end of this year.
- Exchange the draft plans and revise during the early next year.
- Present the detailed program at the meeting in New Zealand next year, 2016


Monthly working plan
Team
program
plan
8
9
10
11
12
1
2
3
4
5
6
WSTEM
Exchange/ visiting program
Draft plan
Revised plan
Presentation
KWSE
Empowering/ Education program
Draft plan
Revised plan
Presentation
TWiST
Gathering program
Draft plan
Revised plan
Presentation
WE-Malaysia and Vietnam
Gender equality/ governmental act
Draft plan
Revised plan
Presentation

ICWSTEM

Welcome Speech

GANTUMUR Luvsannyam

Minister of Education, Science and Culture of Mongolia

Welcome dear ladies and gentlemen, guests, scholars and researchers who are dedicating your minds and will, strength and talent in the sphere of education, science and technology!

Education provides an essential foundation for social development, and with its relatively independent structure it has become a vital factor for a range of human activities in Mongolia. Since education is considered as a comprehensive source for human development, it is grounded in state policies, which are in turn, based on the Constitution. Thus, modern education has become a tool for resolving actual problems of society. For this reason, education laws and other legal documents are aimed at solving issues such as reducing poverty and child mortality, protecting population health, strengthening human rights, deepening international cooperation, developing traditional art and culture, protecting the environment and other related areas.

Today, countries are implementing the concept of "Education for development" in their development vision, and follow the three closely interconnected concepts of individual freedom, social justice, and economic efficiency as the major policy orientation in education development within the frame of a democratic society. For example, Mongolia's policy on education includes the Gross National Income per capita, inflation rate, income of the education sector workers, economic factors regarded with real consumption criteria, and transparency of education activities. Moreover, the role of science in human life, consumption, production and the economy is increasing. Working at such a rapid pace to overtake the speed of technological and technical revolution, it becomes important to remain ourselves.

I am sure that this Asia-Pacific international conference of women scientists will leave in its wake a bright light to help building competitive Mongolian citizens of the world. This conference will be one of the great examples of activities of women's non-governmental organizations.

I would like to express my gratitude, wish you good luck and give a warm-hearted blessing to the conference, initiated by women working in the fields of development, society, innovation, engineering construction, science and education.

May the science and research work you do find great prosperity and triumph!

GANTUMUR Luvsannyam,

Minister of Education, Science and Culture of Mongolia

Welcome Speech

Welcome Message from Chair of the International Conference in Science, Technology, Engineering and Mathematics in Mongolia

Dear delegates and participants,

On behalf of the Organizing Committee for the Asia and Pacific Nation Network (APNN) and the International Conference on Women in Science, Technology, Engineering, Mathematics (ICWSTEM) I am honored and delighted to invite you to participate in the fifth APNN and the ICWSTEM joint meeting to be held in Ulaanbaatar, Mongolia, June 25-27, 2015.

Women in Science, Technology, Engineering and Mathematics (WSTEM) in Mongolia was established in 2012; it is comprised primarily of Mongolian women faculty and pr actitioners in the STEM and social science fields. WSTEM has been actively engaged in helping develop education and science in Mongolia, by performing training and other related activities for lecturers and professionals in the country. Mongolia's development strategy is to strengthen its knowledge economy. Key to achieving this is quality improvement in education and research, and stimulating innovation. Thus, our theme this year is "Education Reform and Innovation."

While Mongolia has made important strides in achieving gender equality, such as revising the election law with the introduction of 20 percent quotas for women candidates, it still has a long way to go when it comes to parity between women and men in education and science. Currently, Mongolia ranks 33rd out of 136 countries according to the World Economic Forum's Global Gender Gap Index (2013), which constitutes a significant improvement compared to 2012 when it ranked 44th but still lower than in 2010 when it ranked 27th. Women hold 70 percent of the jobs in the education sector, and yet more than 90 percent of the people in positions of power are men. We are hoping that this conference will bring us, the women faculty in science, technology, engineering and mathematics, together to enlighten each other, and most importantly the public, about our role in developing the knowledge economy, by focusing on education and innovation, in Mongolia and beyond.

A feature of this meeting is the inaugural awards ceremony for women in STEM fields, a first in Mongolia. Motivated by examples set at the INWES and A PNN meetings, and in discussions that emerged from preparing Mongolia's 2014 Action Plan, we realized that there are no awards for women scientists in Mongolia. This bi-annual award ceremony for women in STEM will recognize the best women scientist in the following disciplines: Agriculture, Medicine, Engineering, Technology, Food and Li ght Industry, and Education and Social Science. The research of the six awardees will be present in a poster session format.

The APNN meeting, to be held on June 25th, 2015, features 3 invited speaker sessions, country reports for 2014, and plans for 2015. The ICWSTEM on J une 26, 2015 features 3 additional invited speakers, in a panel session format, discussing women faculty's role in education and science in developing and developed countries. Finally, ICWSTEM continues with the Awards Ceremony for Women in STEM, the poster session, and group photo.

There are several opportunities to experience Mongolia's rich cultural heritage. A cultural performance will be held to mark the end of the APNN conference, there will be museum tours

or an all-day trip to the countryside will be hosted on June 27, 2015. Please use the website to register for these cultural events. The deadline to register for these events is: June 1, 2015.

We are certain that your participation will make this conference wonderful, fruitful and successful. For many, this will be your first trip to Mongolia. We are excited to welcome you to the Land of the Eternal Blue Sky!

I welcome you again and wish you have a great time at the ICWSTEM.

Undram Chinbat, Chair of ICWSTEM

Keynote Speech

DEVELOPMENT & INNOVATION OF MONGOLIAN HIGHER EDUCATION SYSTEM

B.Nasanbayar : Director of Department of strategic policy and planning of Minister of education, and science

T.Amarjargalan, PhD : Team leader of working group under the MECS, professor of ITS from MUST

Mongolian higher education system was established in the beginning of the 20th century and underwent through different phases. During the transition from centrally planned economy to market economy in early 1990s, Mongolian higher education system was developed widely. Soon after, higher education system of the country went through the economic crisis due to social changes. The next phase was that number of higher education institutions increased because of the liberalization in education system. Nowadays, the higher education system facing the beginning of a new phase of reform which considers quality of education. By improving quality of Mongolian higher education system, foundation of knowledge based economy can be well laid as well as competitiveness of the country in international arena will increase. This article describes the main challenges of Mongolian higher educational reform, its innovation policies and implementation approaches.

Keynote Speech

What is the evolution of science and technology in 21 century toward the progress of our life?

Toyoko Imae, ScD
Professor of Technology National Taiwan University of Science and Technology

In last half of 20 century, science and technology made remarkable advance. Especially, the progress of information technology greatly contributed not only to industrial process but also to our social life. However, before long, we had to encounter unfavorable legacy originatin g from so-called “industrial revolution in 20 century.

What is the evolution of science/technology in 21 century toward the progress of our life?

Toyoko Imae
Graduate Institute of Advanced Science and Technology
and Department of Chemical Engineering
National Taiwan University of Science and Technology
imae@mail.ntust.edu.tw


View of Taipei city and 101 building from my office

Historical Involvement of Science and Technology to Human Society

(1) **first industrial revolution** (industrialization)
AC 18 (middle) ～ 19 (middle)
development of machine


Steam engine by James Watt

(2) **Second industrial revolution**
AC 19 (middle) ～ 19 (end)
development of industry
machine manufacture (printing press)
transportation manufacture (steamboat, railway)
Amusement manufacture (movie, radio, phonograph)
mass-production

(3) **Third industrial revolution**
AC 20

Innovation from industrial society
to information society

Information technology (computer, internet)
Assembly industry (car, home electric appliances)
Atomic energy power
Military industry




Atomic power generation

What are the targets of science and technology in 21st century?

Caution: Unfavorable legacy from previous centuries

(1) Consumption of natural resources
(2) Global warming (High emission of CO_2)
(3) Climate change, pollution (air, water), and hazard
(4) Destruction of natural environment
and Biological diversity

⇩

Global environmental problems

20th industrial development

↓

Comfortable life

Increase of demand of materials
(1) Consumption of natural resources
↓
Solution of issue
e.g. rare metal/rare earth metal resources
↓
Further Development of technology

(3) Climate change, hazard
(2) Global warming
(greenhouse effect)
↓
High emission of CO_2
↓
Development of renewable energy resources
↓
(4) Destruction of natural environment and Biological diversity

Earth Environmental Science

(Earth Environmentology)

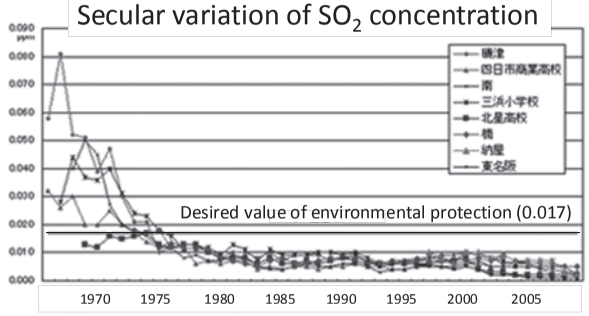
Natural environment
protection of nature
ecological movement
geoscience

Social environment
pollution (air, water, soil)
waste
noise
*diminution of carbon dioxide
*extended Producer Responsibility
(3r: reuse, recycle, recover)

Town environment

Issue confronted at high economic growth period in Japan: pollution

Secular variation of SO_2 concentration



green innovation

Energy revolution till 20 century:

Wood → charcoal → coal → petroleum → atomic force

meal smelting	industrial evolution	highly -developed industrials	stable energy supply saving resources

Breakdown of Mythology:

Eastern Japan earthquake
March 11, 2011 東日本大震災

Earthquake, tsunami,
an accident at a Fukushima nuclear power plant

Innovative Science and technology

(1) green innovation (energy innovation)

Three elements on Energy innovation

Generation of energy
創
Solar energy generation
Hydrogen energy generation

Storage of energy
蓄
advanced storage buttery
Fuel buttery

Saving of energy
省
Lighting
display

Energy supply

Progress of renewable energy

Exhaustible energy

Biofuel (coal, coal oil, natural gas, shale gas, methane hydrate)
Atomic energy
(radioactive material)

Waste material
Hydrogen
(Fuel battery)
(Thermal storage)
Biomass

Renewable energy

sun

photon — heat

Solar energy generation

Solar heat

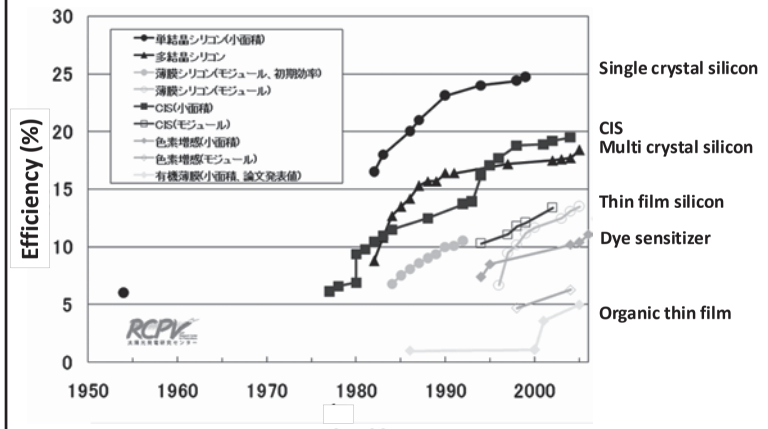
Biomass

Wind power
Water power
Air power
marine heat

heat

Ground heat

solar energy generation



Issue: increase of efficiency, save resources

Hydrogen (clean) energy generation:

for repress of global warming

broadening of
hydrogen energy society

production and supply of H_2 gas

Production of gas station

Utilization, demand

Three elements on Energy innovation

Generation of energy
創
Solar energy generation
Hydrogen energy generation

Storage of energy
蓄
advanced storage battery
Fuel buttery

Saving of energy
省
Lighting
display

What is fuel cell?

(1) Primary battery

No reused

Dry cell buttery

(2) secondary battery

充電

Necessary of charge

放電

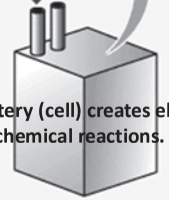
Lithium ion battery

Lead battery

(3) Fuel cell

Anytime possible to create electricity

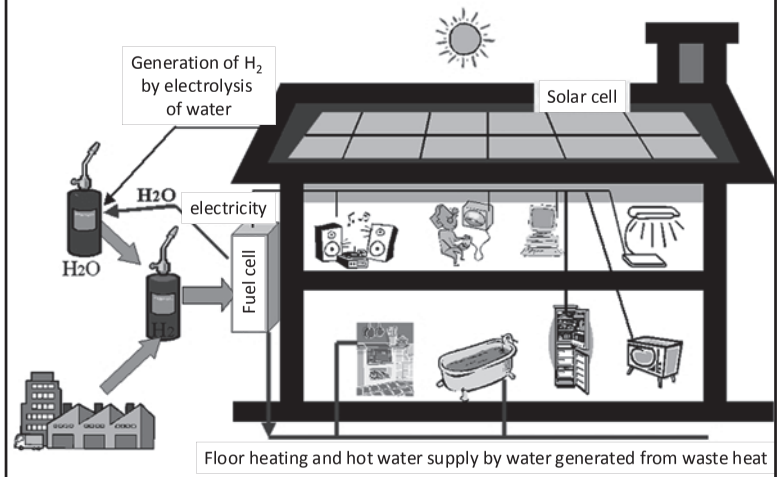
H_2, O_2



Battery (cell) creates electricity by chemical reactions.

Current and future status:
Fuel cell vehicle (car)
Household fuel cell

Your house in future



Biomass production of methanol as a low material of H_2

↓

Demands of row materials for biomass products
Supply to renewable energy

↓

Destruction of natural environment
Extension of farm

↓

Destruction of biodiversity
Destruction of habitats of species
(both animals and plants)
Extinction of species

We must force an end to "desertification of biodiversity".

Three elements on Energy innovation

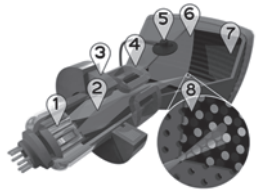
Generation of energy
創
Solar energy generation
Hydrogen energy generation

Storage of energy
畜
advanced storage battery
Fuel buttery

Saving of energy
省
Lighting
display

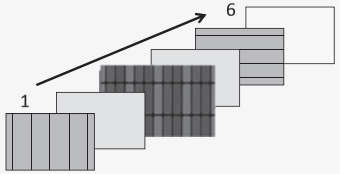
development of display

Brown tube: It was invented at the end of 19th century and mainly used in TV .
The negative point is to be heavy and large. Inorganic fluorophore emits by electron beam.



1. Electron gun
2. Electron beam
3. Focusing coil
4. Deflecting coil
5. Anode terminal
6. Shadow mask
7. Color luminescent material
8. Its enlarged view

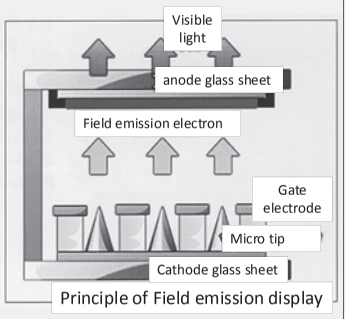
Liquid crystal panel: Megatrend of planar display in PC and TV
The polarization characteristics of liquid crystal is utilized.



1. Polarizing filter (vertical)
2. Glass plate
3. Transparent inter-electrode liquid crystal
4. Glass plate
5. Polarizing filter (horizontal)
6. Light source

18

plasma

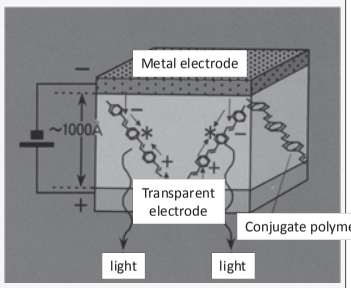


Principle of Field emission display

It is utilized the emission of gas.
It is suitable for big video screen.

Organic electroluminescence (EL)

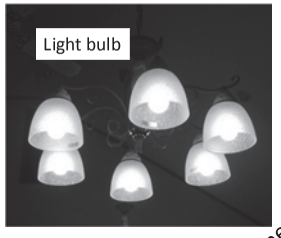
Emission from solid organic
EL elemental device

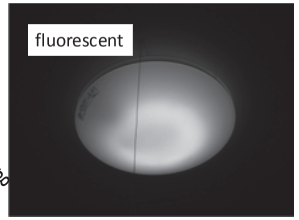


Low-power system: eco-friendly

19

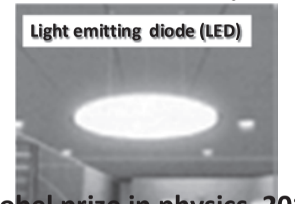
development of lighting

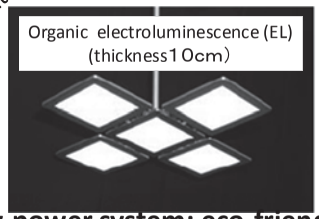




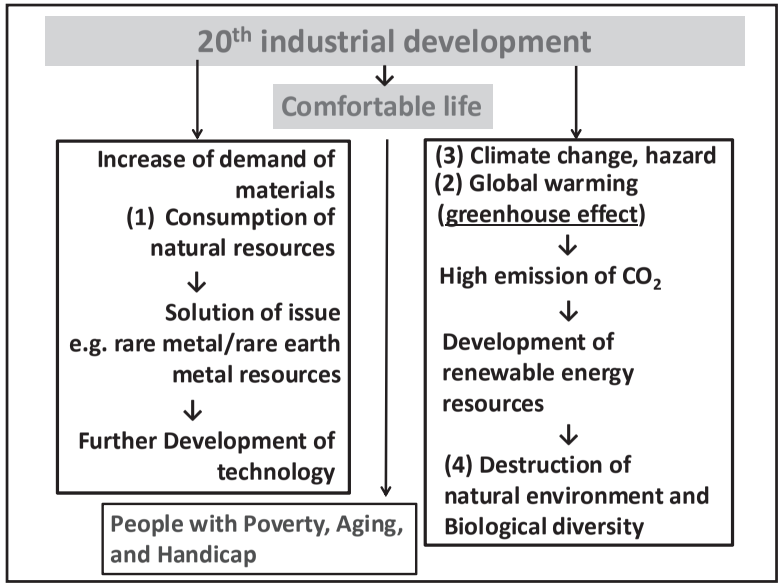
dot・line lighting

Plate lighting





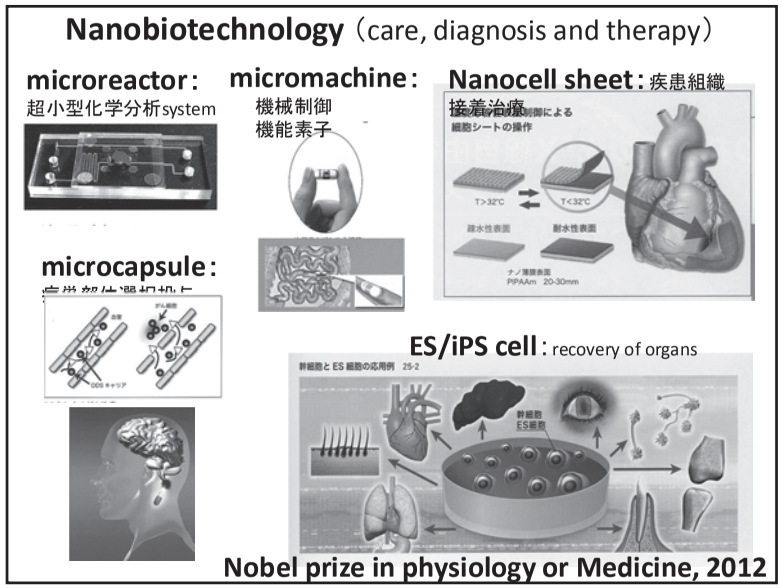
Nobel prize in physics, 2014, Low-power system: eco-friendly

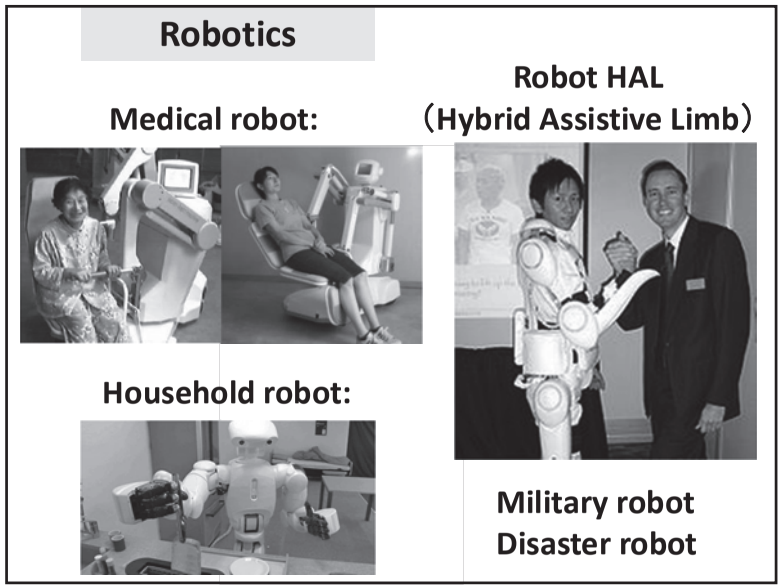


Innovative Science and technology

(2) Life innovation: medical/nursing care

1. Preventive medical care 予防医療
   microreactor
2. Diagnosis and therapy 診断・治療
   micromachine (MEMS) ・microcapsule（DDS）
   ・Nanocell sheet・ ES/iPS cell
3. Self-support of aged and handicapped persons
   robot 高齢者・障害者自立



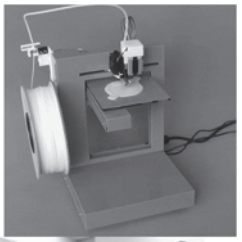


Almighty cell	iPS cell	ES cell	Clone ES cell
Underlying cell	Somatic cell 体細胞 from skin sec	Fertilized egg 受精卵	Somatic cell and egg cell
Experiment on mouse	○	○	○
Experiment on human	○ 2007/11 success	○	×
Immunological rejection	No	Yes	no
Issue in the future	Go clear carcinogen 発癌性	Break-down of Fertilized egg (ethical question) 倫理問題	Be conductive to clone human

New Innovative Science and technology

3D printer (High technology for printing)
Hand press (AC15)→printing machine →
desktop publishing →3D printer
(creation of 3-dimensional objects)

Production of gun: ethical infraction

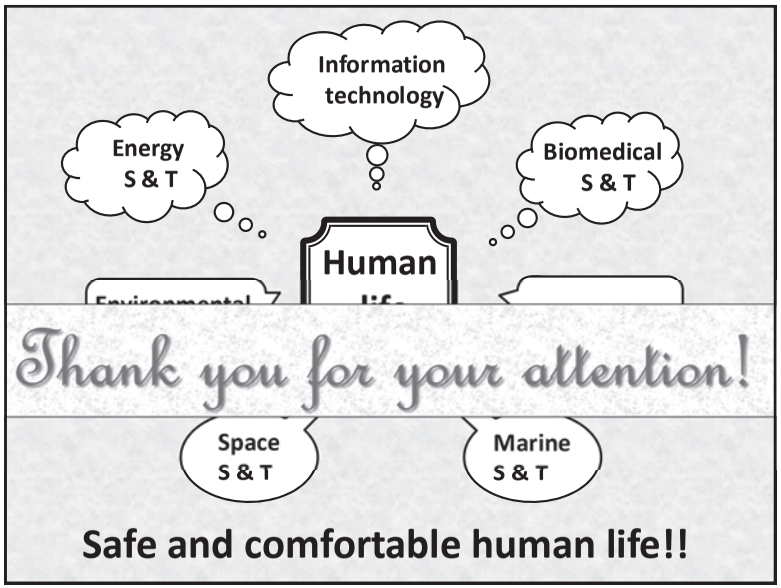


What is a task of Scientists/engineers?

The task is to work for comfortable existence of human beings and to preserve our earth pleasant for all living creatures.

What is the action which we can do or must do?

"3R (reduce, reuse, recycle) of Resources"
In industry and at home



Keynote Speech

GEOSCIENCE EDUCATION IN MONGOLIA : PRESENT AND FUTURE

Ochir Gerel & Baatar Munkhtsengel Dept. of Geology and Hydrogeology,
Mongolian University of Science & Technology, Ulaanbaatar, Mongolia

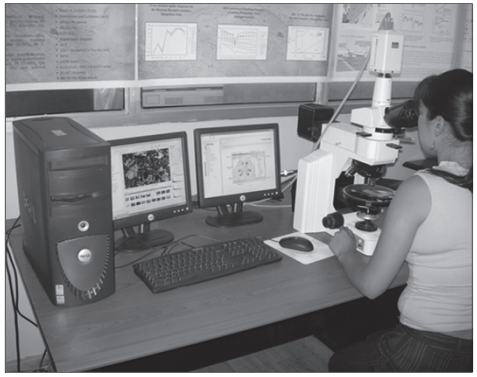
GEOSCIENCE EDUCATION IN MONGOLIA:PRESENT AND FUTURE

Ochir Gerel & Baatar Munkhtsengel
Dept. of Geology and Hydrogeology, Mongolian University of Science & Technology, Ulaanbaatar, Mongolia
E-mail:gerel@must.edu.mn

Outline

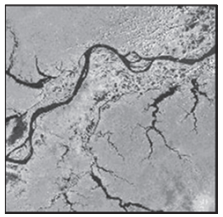
History
Reform in Higher education
- Curriculum
- Faculty (Teaching stuff)
- Labs and equipment
- Field practice
- Collaboration

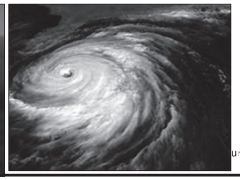
Research: scientific centers, projects
Students
Future



The world depends on the geosciences for expertise in:

- Energy
- Water
- Mineral Resources
- Waste Disposal
- Natural Hazards
- and more





History

- 1960 – Department of Geology
- 1969 - Polytechnic Institute under the MSU
- 1973 - Hydrogeology and Engineering Geology
- 1974 - Exploration of ore deposits
- 1986 - Courses in Paleontology, Petrology & Geochemistry, Structural Geology, Economic Geology
- 1993 - Reform in higher education: BSc, MSc
- 1997 - PhD course

- 2000, 2008, 2014 – Curriculum development
- 2015 - CDIO – Conceiving — Designing — Implementing — Operating- Worldwide initiative to innovative educational framework for producing the next generation of engineers

Why reform in higher education?

- Changes in national economy: transformation from planning economy to market economy
- Changes of government roles: democratization. The policy making process is more decentralized
- Transformation of a Closed Society into an Open Society

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Educational reform

- Offering majors according to market demands
- Adoption of credit system
- Strengthening general education
- Offering more elective courses
- Putting students in the center of learning process

We adopted international standards and learn the international language

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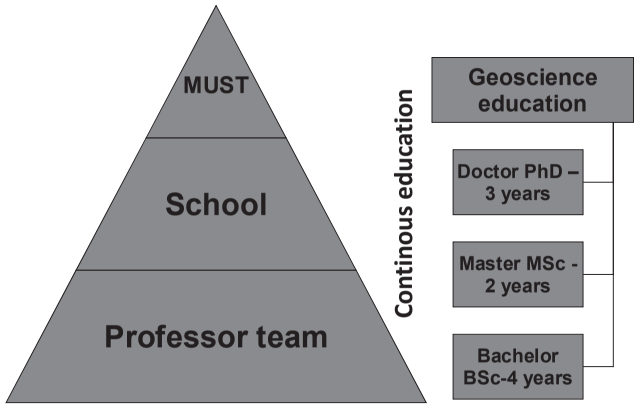
Reform in Higher Education



Continous education

- Geoscience education
- Doctor PhD – 3 years
- Master MSc - 2 years
- Bachelor BSc-4 years

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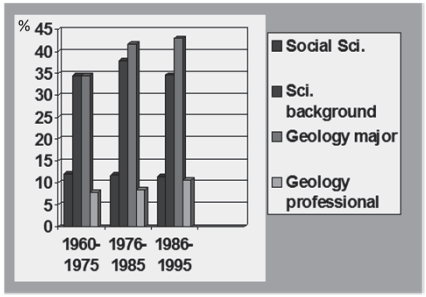
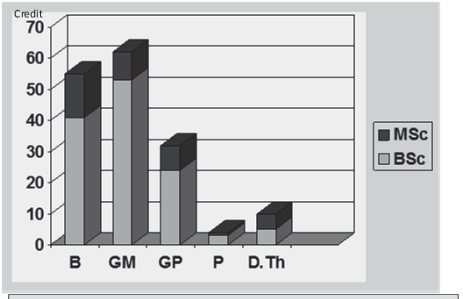
Curriculum development





B- Science background, GM-Geology major, GP-Geology professional, P- practice, D.Th –Diploma thesis

State controlled enrollment, graduation
Good knowledge in science background
Good field experience

Flexible, Open, Opportunity to choose, E-learning
Freedom, Research opportunities: Project, International relations

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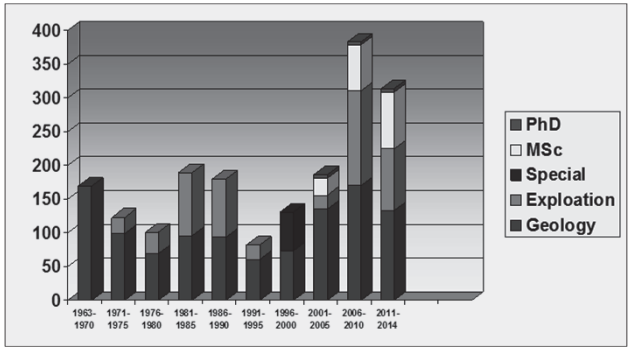
Study fields

Bachelor	• Geology • Geophysics • Hydrogeology
Master (MSc)	• Geology • Exploration of Ore Deposits • Geophysics • Hydrogeology • Engineering Geology • Geoecology
Doctor (PhD)	• Geology • Hydrogeology • Engineering Geology • Geoecology

Alumni (1963-2014)



Now 911 Bachelor, 196 Master, and 60 PhD students

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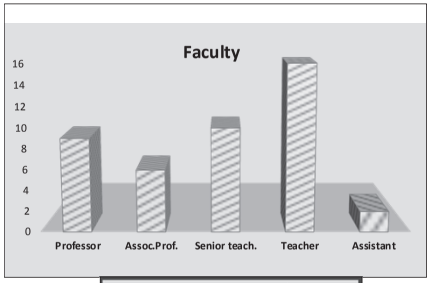
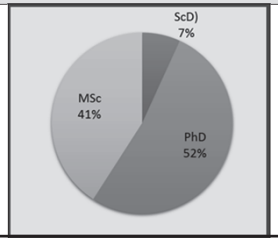
Department of Geology & Hydrogeology
Faculty – 55 (64% female)





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Faculty activity

INTERNATIONAL ASSOCIATION FOR GEOETHICS
IAGETH

IUGS

International Geoscience Education Organisation

- Teaching
- Mentors
- Research
- Projects leaders and team members
- Contractual work
- Consultancy work
- Professional organizations: Mongolian Geological Society Mongolian Society of Economic Geologists, Mongolian Stratigraphic Commission, Society of Hydrogeologists, Soceity of Geophysicists, Association of Mongolian women geologists, and international: **IUGS, IAGOD, IAGETH, SEG, IAH, SEG** (Society of Exploration Geophysicists) **, AGID, IAGC, COFFI.**

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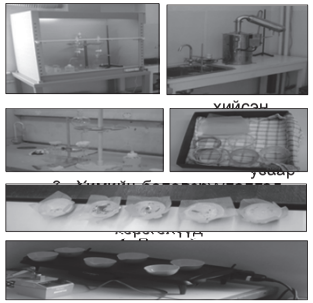
Labs and equipment

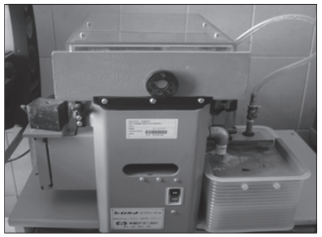
- *Physical Geology lab.*
- *Petrographic Lab.*
- *Mineralogy and ore mineralogy lab*
- *Paleontology and stratigraphy lab.*
- *Economic Geology lab.*
- *Structural Geology and Geological Mapping lab.*

Mineralogy and ore mineralogy lab.

Petrographic laboratory

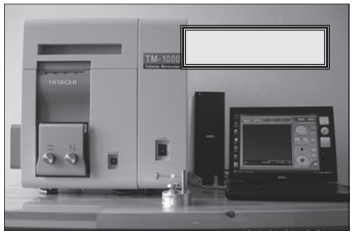
Sample Preparation Laboratory



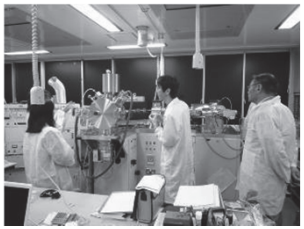


Nagoya University Field research center

- SEM-EDX
- XRF
- ICP-MS
- Ion chromatography



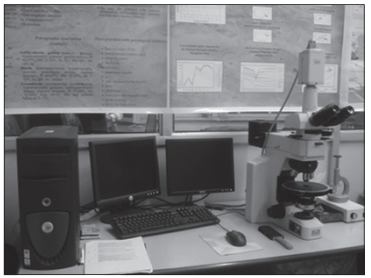
Electron Microscope Hitachi TM-1000



XRF, ICP-MS, Ion chromotography

Labs and equipment

Akita University Education and research use microscope – Nikon Eclipse LV100NTP-M64

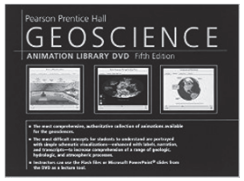


Geoscience Center, Nikon E-600 microscope

Library

Geological Library

Textbooks



University library

Journals

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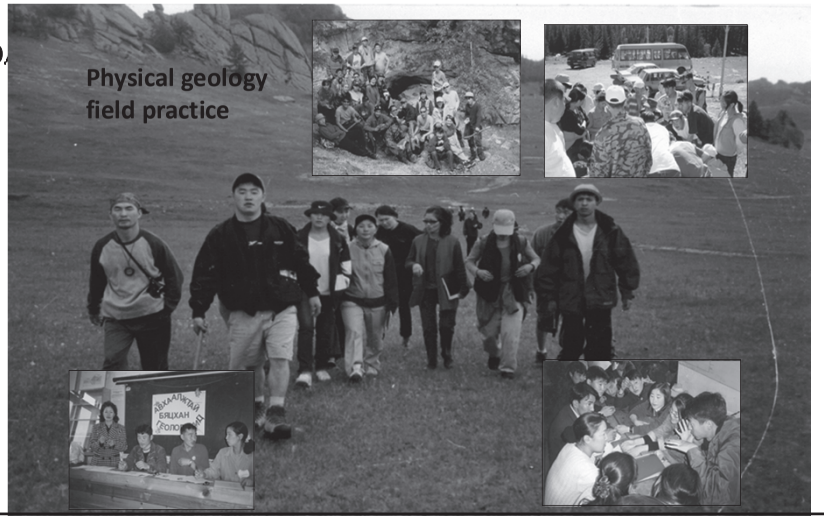
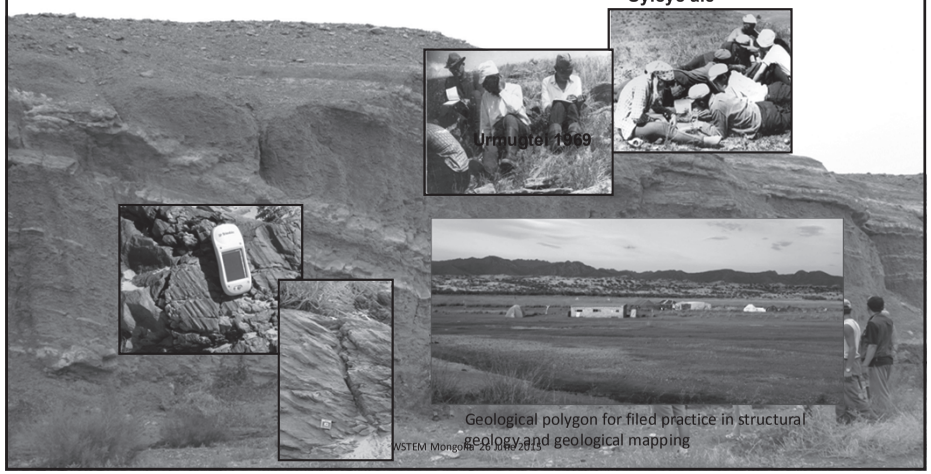
Гео



Geological mapping field practice



Geological polygon for filed practice in structural geology and geological mapping

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Collaboration

- Saint Mary's University, Halifax, Canada
- Irkutsk National Technical Research University, Russia
- Freiberg Mining Academy, Germany
- CNEAS, National history Museum, London, UK
- Shimane University, Matsue, Japan
- Tohoku University, Sendai, Japan
- Akita University, Japan
- Nagoya University, Japan
- Trieste University, Italy
- California University, USA
- Columbia University, USA
- Stanford University, USA
- Lehigh University, USA
- North Carolina university, USA
- Seoul National University, South Korea
- Shijiazhuang Economy University, China
- Institute of Geology and Geophysics CAS , China
- Charles University, Czech Republic
- Czech Geological Survey
- Mendel University, Czech Republic
- Institute of Geochemistry, SB, RAS
- Institute of Earth Crust, SB, RAS

- Ministry of Mining
- MRAM
- Institute of Paleontology and Geology MAS
- Central geological laboratory
- Geological investigation center
- Erdenes Tavan tologi
- Nuclear energy Agency
- Energy Resource
- Oyu Tolgoi
- Monrud
- MainInfo Centerra Gold
- Erdene Mongol
- Rio Tinto
- BHP Billiton
- Western Prospector

Professional Societies

- Mongolian Geological Society
- Mongolian Society of Economic Geologists

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Research

- **Since** 1965 first expedition started and laid the foundation of the Mineralogical Museum
- **In 1972** – contractual work with the Geological Survey of Mongolia
- **In 1974 –Kherlen International geological expedition**: Irkutsk State University, Irkutsk Polytechnic University, Institute of Geochemistry, Institute of the Earth's crust, and later the Institute of Economy, Shijiazhuang, China
- **Highlight: International cooperation**
  Agreement with Mongolian Geological Survey
  International Symposiums and Conferences
  Involvement of teachers and students in research
  Teacher and student training
- **Since 1993 International projects**

International Projects

- *IGCP – International geoscience program*
- *TACIS-TEMPUS projects, European Union*
- *CIDA project, Canada*
- *JICA projects, Japan*
- *Multilateral projects: USA, Russia, Japan, China, South Korea , Germany, England*
- *Bilateral international projects: with universities in Japan, China, USA, Czech Republic, Russia,Swiss*
- *Projects on economic contracts with mining companies*
- *Projects with MRAM and Geological survey of Mongolia*
- *Projects by Science and Technology foundation*

Ongoing research projects

Хараагүй буй төслүүд

- *Intracontinental deformation and surface uplift-geodynamic evolution of the Hangay Dome, Mongolia, Central Asia (2011-2015), North Carolina State University, Lehigh University, Stanford University, USA*
- *Copper Porphyry deposits and metallogeny in South Mongolia (2014-2017)*
- *META 2014 Metallogeny map of Mongolia (2014-2017)*
- *Metallogeny of rare earth elements in Mongolia (2013-2015)*
- *Comparisons on tectonic evolution and metallogenic conditions between Chinese Beishan and southern Mongolia (2011-2015)*
- *Integrated study of environmental pollution control: Case study of the Tuul and the Kharaa river basins" Higher Education Engineering Development M-JEED, JICA Project (2014-2023)*
- *Mineral reosurse of Mongolia" Higher Education Engineering Development M-JEED, JICA Project (2014-2023)*
- *Crustal growth and construction of continental crust exemplified by Central Asian Orogenic belt (2012-2015),*
- *The role of the Paleozoic accretionary and collisional orogens in the forming of the continental crust (2012-2015), Czech Geological Survey*
- *Paleontological and stratigraphical study of Precambrian and Cambrian boundary (2009-2016)*

Research Centers

- Geoscience Center
- Center for Paleontology and Stratigraphy
- Geoinformatics Center
- Nagoya Field Research Center

Center for Paleontology and Stratigraphy

TM 100 table top microscope

International filed workshop

- **IGCP projects**
- Stratigraphy nomenclature and standartization
- Projects with contracts

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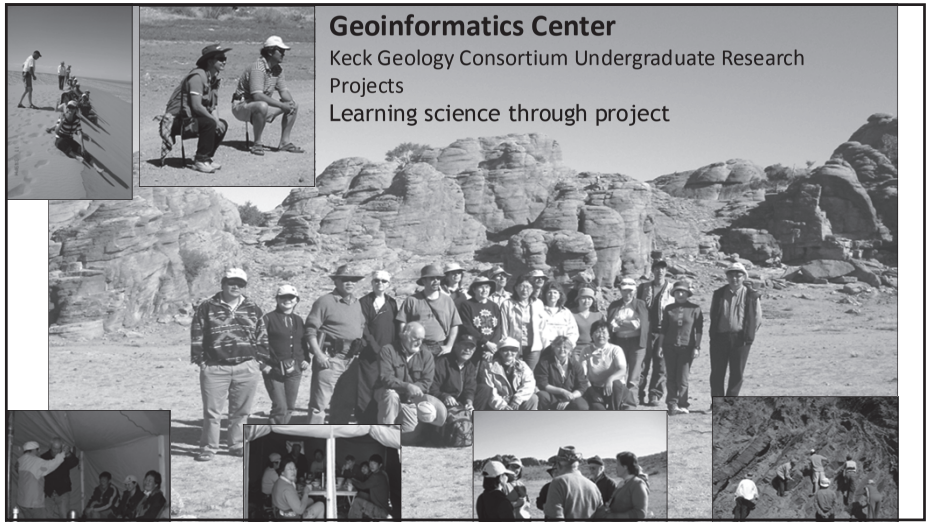
Geoinformatics Center

Keck Geology Consortium Undergraduate Research Projects

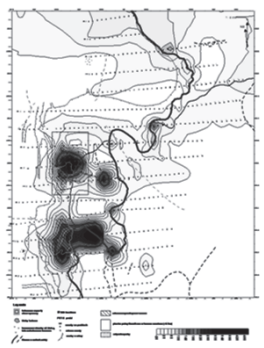
Learning science through project



Geoscience Center: International projects

- **Environmental assessment at the Erdenet mine area, Northern Mongolia (MUST, Geomin, Czech Republic, Tohoku University, Japan, 2006-2007).**
- **Assessment of environmental risks of mercury pollution during the exploitation of gold deposits in Selenge catchment area (MUST, Geomin, Czech Republic, 2006-2008; 2008-2010).**
- **Reconnaissance study in South Gobi (MUST, Trieste University, Italy, 2011).**
- **Education for Environmental Transition: The Impact of Mining in Mongolia (MUST, Saint Mary's University, Canada, 2004-2010; 2011-2013).**

Geoscience Center



Mercury contaminated in soil air

Cyanide polluted waste

Ore treatment by mercury amalgamation and cyanide leaching performed under the primitive technical conditions.

Hand treatment in gold mine

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"KNELSON" washer machine of heavy elements (gold, mercury, cyanide)

The volume of mercury contained in clay layer of gold bearing rock was measured as 9415 m3 and 9907m3 in waste after washing a gold. It would require 966 days to wash out mercury from total of 19312 m3 soil at a rate of 20 t/day

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CIDA Project: Education for Environmental Transition: The Impact of Mining in Mongolia (MUST, Saint Mary's University, Canada) Replicating Mining Remediation Strategies (2004-2010)

- New curriculum
- Modern equipment
- Teaching style
- Teacher training: 25
- Gender
- Research: environmental study

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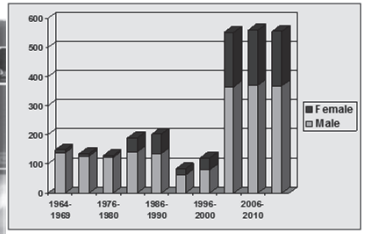
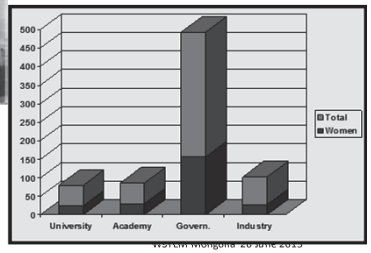
Gender study

Mongolian women in Geoscience, 2010





Women now comprise 33%-35% of Bachelor's Degree Recipients at the School of Geology & Mining, 35-50% - of MSc and PhD

Proportion of women working in academic Institutions is high

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International Conferences

International Symposium of the IGCP Project 596 & 580, August, 2014

Kherlen IGE Conference , May, 2015,

Save Nature for Future Generation Workshop, September, 2013

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Critical Metals, June 2013

Workshop "Teaching Geology in 21st century", 2013

Workshop "Replicating Mining Remediation Strategies", 2014

Award for papers published in peer-review journals, 2015

11 received awards

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Geoscience to Society

- Activity within the IYPE
- Student Photo contests
- Museum of Geology and Mineral Recourses: open day for high school students
- Workshop for secondary school teachers
- Geoerdem student club: lecture for secondary school children
- Exhibitions, lectures, TV

Lkhamsuren Museum of Geology and Mineral Resources

Established in 1969
More than 5.000 mineral deposits and occurrences comprising over 400 different minerals have been discovered all over the country.

Togtokh Student field Olympiad, 2015

GeoErdem student club

Metaclub

Workshop for Secondary school teachers

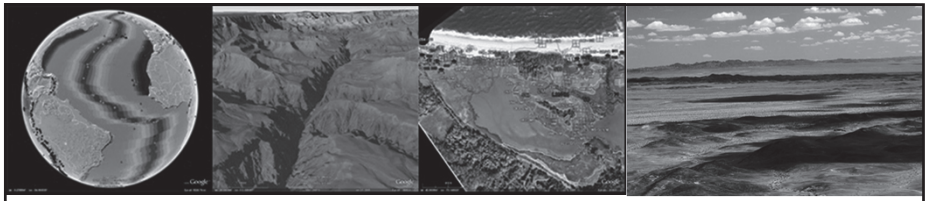
WSTEM Mongolia 26 June 2015

Students

Filed trip for students sponsored by Western Prospector Mongolia

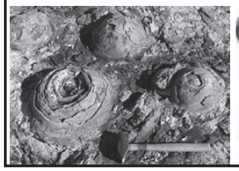
Student conference

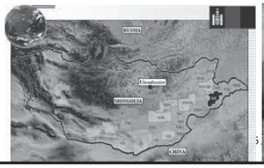
ngolia 26 June



The future can be bright —

but society requires another generation of dedicated professionals and scientists

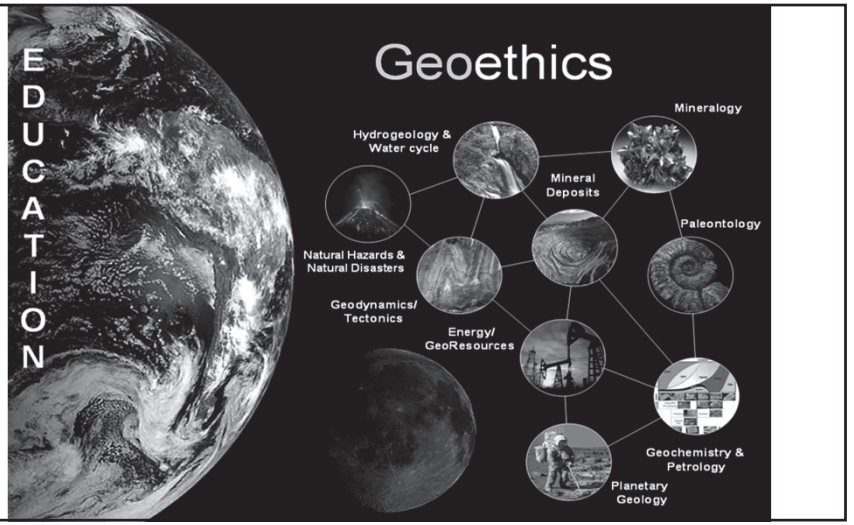




Requirements for graduates

- Fundamental questions, ideas, and methods of analysis in geoscience
- The application and integration of these methods
- Creative, analytical, quantitative, and critical thinking
- Ability continuously improve skills
- Understanding and evaluating the changes
- Ecological education
- Possession of modern research methods
- Foreign language skills
- Geoethical education

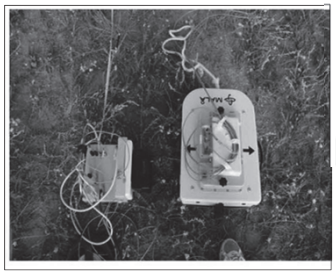
WSTEM Mongolia 26 June 2015



New methods

- Using ICT: Google Earth, Landsat.
- Mixed learning: E-learning, M-learning and classroom learning Addressing students at the operation and reports to write, etc.
- Introduction of new methods of geological mapping practice: GeoPad -digital use of technology
- Online interactive textbooks
- Visualization to build and create 3D models, etc.

New methods in geological mapping

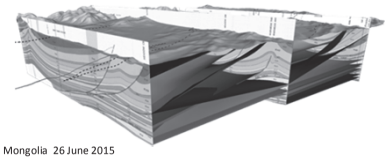


500MHz frequency radar antenna with 2 instruments (RAMAC / GPR) for portable computers and other accessories for training and research

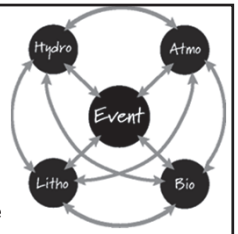
move™

clino Fieldmove
The best digital mapping app in the world
clino pro Fieldmove
Available as an in-app purchase in FieldMove Clino

Training and production of newly introduced software use of contracts and rights



Earth System Science (ESSC) studies the dynamics of the Earth as an interrelated system that includes the atmosphere, biosphere, geosphere and hydrosphere, as well as human impacts.
Fundamental understanding of these issues have derived from scientific research that integrates traditional disciplines such as geology, meteorology and oceanography



- It will help to solve
- Global environmental change
- Biodiversity
- Air and water pollution
- Natural hazards
- Energy resources
- Sustainability.

ESSC curriculum should be developed to educate a new generation of students under this interdisciplinary framework of “Earth System Science”.

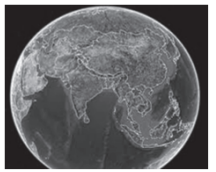
Earth System Science

This program should equip students with the necessary knowledge, analytical and quantitative skills, research experience to tackle the major challenge of the 21st century, our sustainable existence on this planet via a balanced and rational management of the environment and natural resources.

Thank you

Atmosphere

Hydrosphere



Geosphere

Biosphere

Keynote Speech

INNOVATIVE PROGRAMS FOR WOMEN IN STEM

Gail G. Mattson : Associate Laboratory Director, Environment Safety & Health,
Brookhaven National Labs, USA

The Society of Women Engineers (SWE) founded in 1950, has been a leader in developing outr each and professional development programs to inspire and encourage the next generation of women engineers. SWE engages young girls in the possibilities of this rewarding career path with inspiring workshops, STEM camps and programs, Girl Scout events and interaction with SWE role models. For its professional members, SWE had developed a wide range of pro grams focused on career advancement such as webinars, outstanding workshops and seminar s at regional and national conferences, and leadership training. Highlights of these successful and innovative STEM programs will be presented along with information for obtaining mor e details for use by other STEM organizations around the world.

THE SOCIETY OF WOMEN ENGINEERS

INNOVATIVE PROGRAMS FOR WOMEN IN STEM

The Society

FOUNDED IN 1950

The driving force that establishes engineering as a highly desirable career aspiration for women.

SWE empowers women to succeed and advance in those aspirations and receive the recognition and credit for their life-changing contributions and achievements as engineers and leaders.

SWE Structure

A multi-disciplinary educational and scientific 501(c)(3) membership organization representing all engineering and technology disciplines

100
professional sections

300+
collegiate sections

10 regions; Int'l Affiliates

for the U.S. and Puerto Rico

34,000

total members (Women & Men, International, 50% College Students)

SWE'S PROGRAMS FOR COLLEGIATES AND OUTREACH TO GIRLS

ASPIRE
K-12 OUTREACH

SWE Outreach programs inspire the next generation of women engineers and technologists. We engage young girls in the possibilities of this rewarding career path with inspiring workshops and interaction with SWE role models.

Invent it. Build it.

Voices from the Field

WOW! That's Engineering!

sweNEXT

WOW! INNOVATION CHALLENGE

WOW! That's Engineering!

- Recognition of the innovation outreach techniques being used by SWE members
- Eligible for outreach stipend (SWE members only) from corporations.
- Winning entries featured on SWE social media, website and the SWE All Together blog.

Wow! That's Engineering!

INVENT IT. BUILD IT.

Invent it. Build it.

- Day-long hands-on event for girls 11-14 years old and their parents during SWE's conferences.
- Girls do hands-on engineering activities while working with women engineers and engineering students.
- Have lunch with SWE engineers
- An "Outreach Expo" runs concurrently and features organizations that have camps, clubs and competitions for girls interested in engineering.
- Get an Invent It. Build It. t-shirt, bag and lots of other goodies

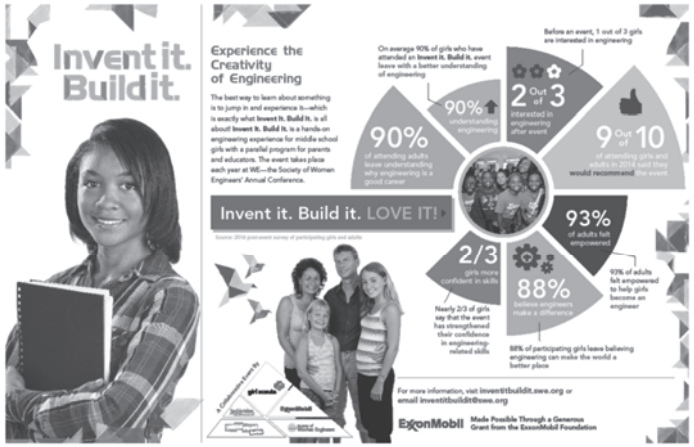
Invent It. Build It.

INVENT IT. BUILD IT.

- Parents attend a separate track to learn about engineering careers, scholarships and academic preparation.
- Participate in a panel discussion with select SWE members and outreach experts
- Have lunch with the SWE engineers
- Complete a hands-on activity and learn best practices for doing engineering activities with girls

Invent it. Build it.

Invent It. Build It.



SWENEXT

swe NEXT

Opportunity for girls 13 up to 18 years of age to become part of SWE.
Features:

- Quarterly webinars to learn about different engineering disciplines conducted by women engineers
- "Do at Home" projects and other resources for parents and teachers to help keep girls engaged
- Information on scholarships
- Links to camps, competitions and hands-on events conducted by SWE and SWE partner organizations
- SWE goodies and resources
- Opportunity to provide feedback to improve program

SWENext

VOICES FROM THE FIELD

- Learn outreach best practices from peers
- Monthly hour-long webinars led by SWE members or practitioners from SWE partner organizations
- Time for audience questions on each webinar
- Join live or listen to the recordings

Outreach Webinars

ESTABLISH AND SUPPORT COLLEGIATE SECTIONS

- Over 50 years established 300+ collegiate sections at universities with engineering programs across the country
- Collegiate section is considered a university club, receives some $s from university and has a faculty advisor
- Local professional section(s) provide section advisor, collaborate on joint outreach programs, and support career development activities
- Collegiates eligible for SWE scholarships and awards
- Collegiate section participates in outreach programs, conducts fundraising and involved in planning/conducting conferences
- Universities with strong SWE sections have significantly higher graduation rates of women with engineering degrees

SOCIETY LEVEL SCHOLARSHIP PROGRAM

Addresses "lack of financial resources" which is a major obstacle for women pursuing engineering degrees*

Funded by corporations, foundations and individuals

Supports undergraduate and graduate studies; along with those returning to complete degrees

In 2014, SWE awarded nationally over $727,300 in scholarships

*CAWMSET Study, September 2000, www.nsf.gov/od/cawmset/start.htm

SWE Advance Philosophy:

Leadership Competency Model for Professional Development

Competency Model:

BUSINESS KNOWLEDGE & MANAGEMENT

- Strategic planning through the development of effective strategies consistent with the mission of SWE. Sees the big picture and understands how to determine organizational objectives, set priorities, and identify actions.
- Manage finances of SWE to meet organizational needs.
- Apply effective management skills (e.g., problem solving, interpersonal skills, delegation and supervision).
- Professional knowledge and skills by being aware of industry changes, developments and emerging issues affecting women in STEM.

Competency Model:

COMMUNICATION

- Communicate plans and activities in a manner that supports strategies for teamwork.
- Conflict resolution and management by skillfully settling differences in a positive and constructive manner.
- Influencing others through coalition building, inviting new perspectives, and clearly articulating the goals of SWE.
- Identify and collaborate with internal and external partners
- Build relationships that support SWE's mission and strategic objectives.

Competency Model:

SELF-MANAGEMENT & DEVELOPMENT

- Pursuit of lifelong learning through the mastery of new knowledge, embracing new ideas, and shares new ideas.
- Self-reflection and assessment through recognizing strengths and weaknesses, seeks feedback from others and learns from failure.
- Flexibility by being open to change and new information/perspectives.
- Identify career options and strategies

Competency Model:

LEADERSHIP

- Developing and empowering others.
- Provide and support an environment for continuous improvement.
- Maintain a high standard of professionalism and ethics.
- Be an advocate for the role of women in STEM.
- Results oriented through delivering on strategic goals.
- Thinking, supporting and guiding new ideas, and empowering others to take risks.
- Knowledgeable of change management strategies and processes.

Professional Development:

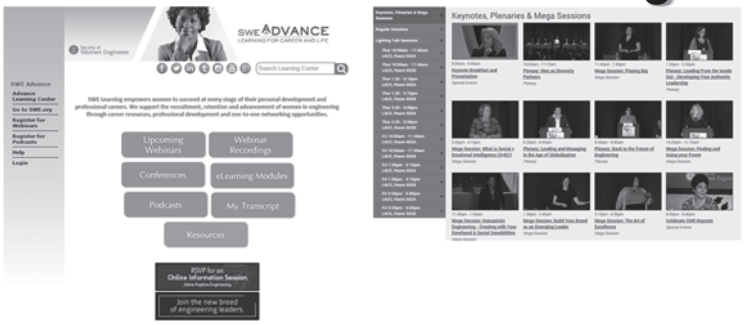
A BLENDED APPROACH

- Online learning through Webinars, Modules, Blogs and Podcasts, Virtual Conference/Session Recordings

- In-person learning through SWE's Annual Conference (Workshops, Panels, Lectures and Executive Summit), International roundtables and conferences, Executive Education Programs, Regional Conferences and Section activities

- Practice what you learn through volunteer and leadership opportunities at the section, regional and society level

SWE Advance Learning



SWE Advance

SWE's Career Insights Podcasts bring SWE to you in a portable and convenient audio format. You can download these podcasts to enjoy the convenience of listening to career advancement advice and tips, discussions on work/life balance, and other professional and personal development topics on your own time.

Resources: This page provides links to resources provided by the webinar speakers such as reports, TED Talks, books or articles they have written.

Online Conferences (recordings available) – sign up and interact through chat room

Online Courses (new in 2015) – Engineering Leadership for the 21st Century

SWE E-Books

We asked SWE members for their stories and words of inspiration.

Read what some of the top women engineers in their field have to say about taking risks, creating change, being a leader, creating balance in your life and other inspiring topics.

Now Available in Print and for Kindle at amazon.com

THE SOCIETY OF WOMEN ENGINEERS

Gail Mattson
INWES VP Conferences
SWE National President, 2000-2001
gail.mattson@swe.org
865.719.9127

Karen Horting
Executive Director & CEO
karen.horting@swe.org
312.596.5216

Keynote Speech

CURRENT SITUATION AND CHALLENGES OF WOMEN IN STEM IN MONGOLIA

Undram Chinbat, PhD : Professor of National Universiy of Mongolia, vise president of WSTEM

This talk presents current situation and challenges of Mongolian women in STEM and activities and pr ogress of Women Scientists, Technologists, Engineers, and Mathematicians (WSTEM) in Mongolia com parative to previous year.

….. While Mongolia has made important strides in achieving gender equality, such as revising the elect ion law with the introduction of 20 percent quotas for women candidates, it still has a long way to go when it comes to parity between women and men in education and science. Currently, Mongolia ran ks 33rd out of 136 countries according to the World Economic Forum's Global Gender Gap Index (201 3), which constitutes a significant improvement compared to

2012 when it ranked 44th but still lower than in 2010 when it ranked 27th. Women hold 70 percent of the jobs in the education sector, and yet more than 90 percent of the people in positions of power are m en. We are hoping that this conference will bring us, the women faculty in science, technology, engine ering and mathematics, together to enlighten each other, and most importantly the public, about o ur role in developing the knowledge economy, by focusing on education and innovation, in Mongolia an d beyond.

Keynote Speech

THE GERMAN-MONGOLIAN INSTITUTE FOR RESOURCES AND TECHNOLOGY A MODEL FOR REFORM OF MONGOLIAN HIGHER EDUCATION?

Dr. Rolf Peter :Programme Director, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

The challenge

Mongolia has one of the world's largest stocks of mineral resources, particularly coal, copper, gold, fluor spar and tungsten. Thanks to the strong global demand for these commodities, Mongolia has been expe riencing a phase of economic growth at a rate averaging 10 % throughout the last years. However, it ha s not yet managed fully to harness the substantial potential for growth in the mineral resource sector to stimulate economic and social development, and added value is limited.

One major obstacle is the severe shortage of highly skilled technical experts and management staff. Mo ngolia's university sector still lacks technical and organizational capacity to meet the needs of indus try and society more generally for engineers and technological experts trained to a high level. Shortco mings in the sector include its inadequate practical orientation and the lack of internal quality standar ds.

Companies and government ministries have concluded that university courses lack adequate profes sional content. For example, engineering and technology science graduates do not possess the necessar y professional, linguistic and social competences to embark successfully on their careers. Furthermore, cooperation between universities and the private sector is inadequate, while involvement by researcher s in international networks is low.

The approach

The establishment of the GMIT was preceded by an agreement between German Chancellor Angela M erkel and Mongolia's President Tsakhiagiin Elbegdorj on close cooperation in the fields of mineral resources, industry and technology. Working on behalf of the German Federal Ministry for Economic Co operation and Development (BMZ), the Deutsche Gesellschaft für 2.

Internationale Zusammenarbeit (GIZ) is supporting the Mongolian Ministry of Education and Science i n developing the GMIT. In cooperation with the German Academic Exchange Service (DAAD), GIZ is re sponsible for implementing Germany's contribution to this bilateral higher education project.

Success factors

As a state-run Mongolian higher education and research institution, the GMIT is an innovation within the national higher education sector. It collaborates closely on developing engineering degree program mes with a consortium of leading German technical universities. Teaching staff from Germany work as lecturers at the GMIT.

The GMIT is responding to the demand for highly skilled engineers and technology experts in Mongolia' s mineral resource sector and its downstream industries. Industry surveys with more than 100

companies confirm this demand and serves as a guide for programme development.

Cooperation with German partner universities, which has been close from the very outset of the pr oject, enables the GMIT to bring international research expertise and access to modern academic stand ards to Mongolia. At the same time, its practice-oriented engineering education is leading the way to improve coordination between the education sector and private businesses.

In organisational terms, the GMIT makes a difference in the the Mongolian higher education system, f or example by incorporating principles of modern university management into its administrative struct ures and maintaining institutional autonomy.

In the medium term, development of its applied research profile and continuing professional developme nt provision for engineers and technologists will enable the GMIT to boost its profile as a business pa rtner in the Mongolian mineral resources sector and its downstream industries.

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DEUTSCHE ZUSAMMENARBEIT

Implemented by
giz

GMIT
GERMAN-MONGOLIAN INSTITUTE FOR RESOURCES AND TECHNOLOGY

Pioneering Reform of Higher Education in Mongolia

Dr. Rolf Peter

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хамтын ажиллагаа
DEUTSCHE ZUSAMMENARBEIT

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GMIT: Idea and Establishment

First university project in Mongolia based on bilateral governmental cooperation

Agreement between German Chancellor A. Merkel and President of Mongolia, Ts. Elbegdorj, October 2011

Mission:

- Educating highly qualified, socially responsible, internationally recognized technology experts for the Mongolian raw materials sector and beyond
- Advancing research and innovation for the benefit of society
- Provding a reform model for Mongolian higher education

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GMIT: Idea and Establishment

- Political Context: German-Mongolian “Mineral Resource Partnership“
- Political ownership: Federal Ministry for Economic Cooperation & Development and Mongolian Ministry of Education and Science

- Implementation on German side: GIZ in cooperation with DAAD
- Timeframe: 2013 – 2016 (to be continued!)

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Step by Step…

- 16th March, 2013: official founding of GMIT via governmental decree
- 25th September, 2013 Start of 1st Academic Year in Ulaanbaatar

- 1st September 2014: Opening of GMIT campus at Nalaikh, and start of 2nd Academic Year
- 1st September 2015: Start of 3rd Academic Year

Some Facts and Figures (Academic Year 2014/15)

Students:	Bachelor: 21
	Basic Engineering Program: 45
Study Programmes:	Mineral Resource Engineering /Processing
	Mechanical Engineering
	Environmental Engineering
Language of instruction:	English
Staff:	academic: 14
	administrative: 15
	technical: 19

Modernizing Higher Education: Six Key Aspects

1. Governance (at system level and institutional level)
2. Academic Quality
3. Demand- and Practice-Orientation
4. Quality Assurance
5. Entrepreneurship
6. Cooperation and Competitiveness

1. Governance

a) System Level
- Funding: public expenditure on HE
- Granting institutional autonomy to HEIs

b) Institutional Level
- Unity of teaching and research (Humboldtian model)
- Academic freedom
- New Public Management

Governance at GMIT

- Special financing model:
  budgets for staff as well as for investments and equipment are provided by the government
- Statute of GMIT:
  - „checks and balances“ within the university‘s decision-making bodies
  - global budget (foreseen)
  - GMIT follows the principles of the *Magna Charta Universitatum*

2. Academic Quality

- Quality of staff and students
- Unity of teaching and research
- Use and transfer of cutting-edge knowledge and international best practices
- Connecting R&D at universities to the private sector
- Student-centered learning (focus on learning outcomes)
- Educating personalities

Teaching and Research at GMIT

- Research university as the institutional self-concept and development of an institutional research profile
- Systematic transfer of international academic standards in engineering science
- Strict entrance requirements for students
- Highly qualified, international faculty
- Multi-cultural environment

3. Demand- and Practice-Orientation

- Provision of HE and research fit for serving societal needs:
  innovation vs. application of cutting-edge knowledge and technologies
- Knowledge about the HR demands of key industries / economic sectors
- Using demographic potentials: e.g. fostering women in science and engineering
- Participation of employers in the educational process (curriculum development, internships, guest lectures…)

Demand- and Practice-Orientation at GMIT

- Strong focus on application in teaching and research
- Participation of industry in selection of study programmes and curriculum development
- Institutional gender strategy

4. Quality Assurance

- Institutional Quality Management System
- (International) Accreditation
- Rankings

Quality Assurance at GMIT

- Establishment of an institutional quality management system:
  - competitive recruitment processes
  - evaluation of teaching
  - performance-based remuneration
- Preparation for international accreditation of all GMIT study programmes

5. Entrepreneurship

- Institutional self-organization and self-government aiming at performance and cost-effectiveness
- Development of a specific institutional profile
- Diversification of financing sources, including third party research funds and direct entrepreneurial activities
- Cooperation with industry

Entrepreneurship at GMIT

- Statute foresees far-reaching competencies regarding GMIT's self-government (operational planning, financing, HR policy)
- Incentives for (academic) staff to engage in fundraising and „business" activities (contract research, start-ups etc.)
- Provision of professional trainings for industry
- Establishment of "Friends of GMIT"

6. Cooperation and Competitiveness

- No competitiveness without cooperation (with other universities, industry, etc.)
- Internationalisation is key!!
- Pooling of resources and infrastructure
- Sharing knowledge and fostering mutual learning

GMIT‘s Cooperational Approach

- Internationality is built-in
- Partnerships with industry are integral part of the university‘s development plan (teaching, research, finance)
- Active engagement in knowledge transfer within the Mongolian HE system

Challenges

- Qualified students
- Qualified staff
- Legal framework
- “Culture“ of university-industry relations
- Sustainable financing model

Thanks for your attention!

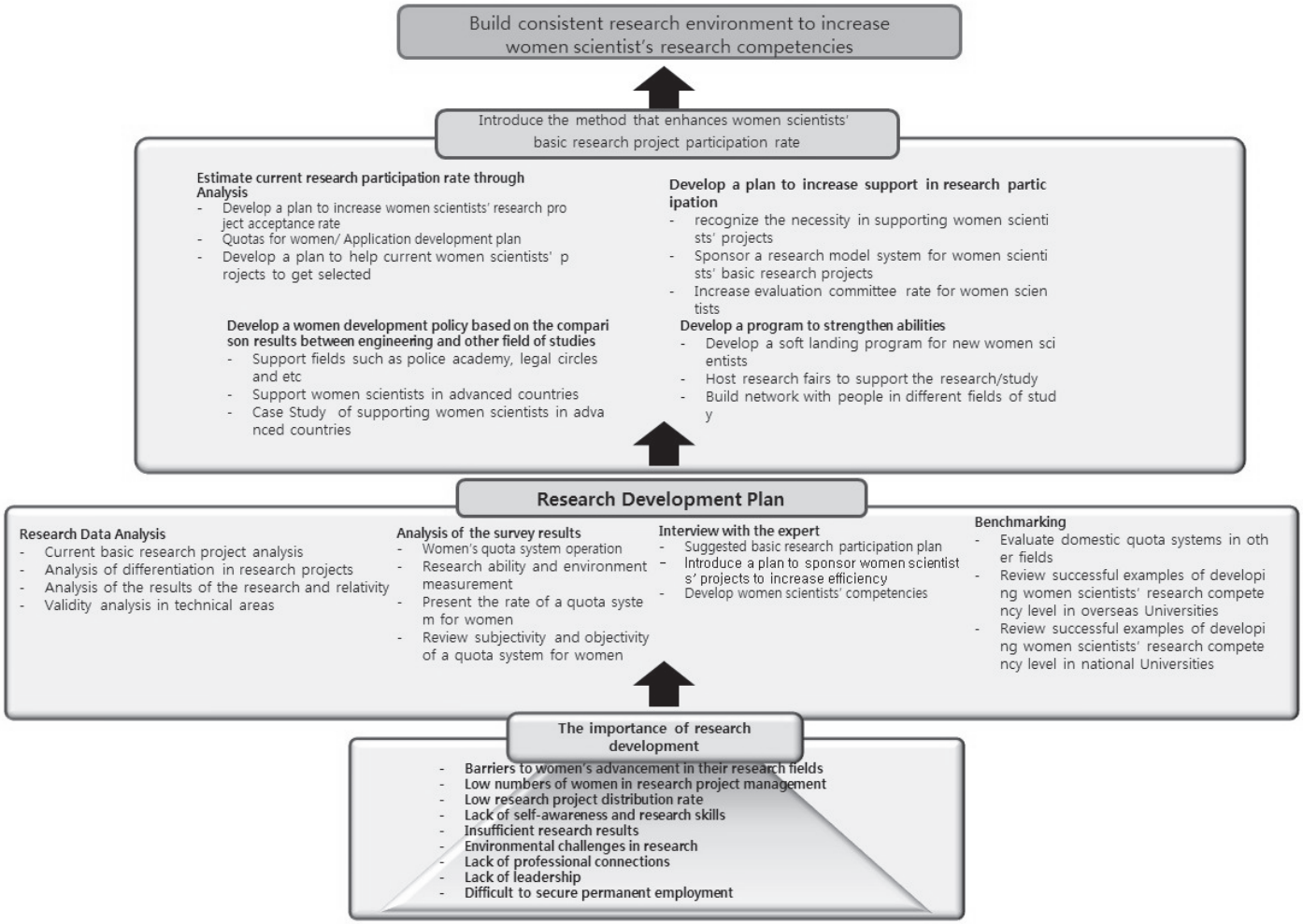
contact: rolf.peter@giz.de

Keynote Speech

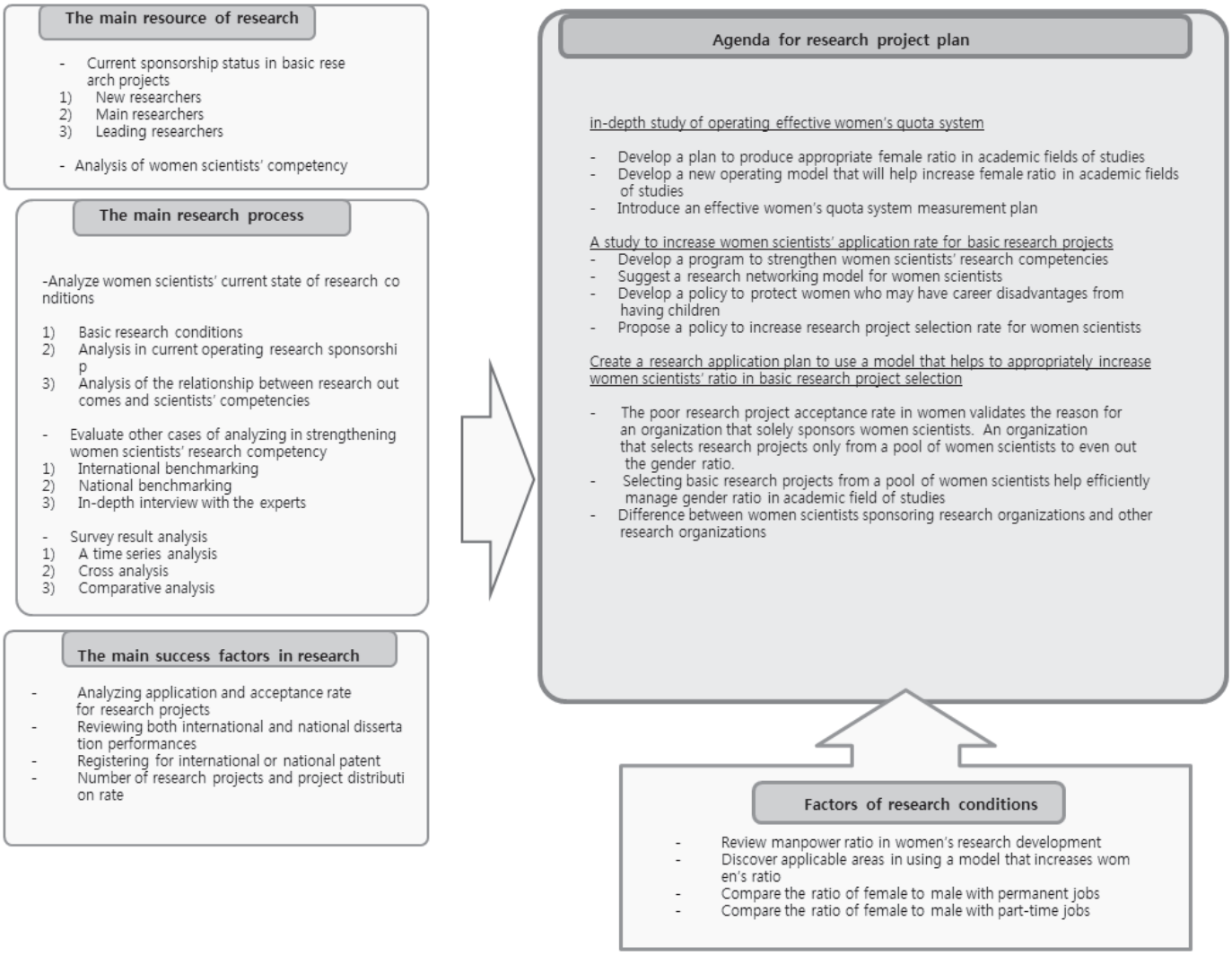
A PROGRAM RESEARCH TO ENHANCE WOMEN SCIENTISTS' PARTICIPATION RATE IN BASIC RESEARCH PROJECTS

Ran Baik : Professor of Honam Universty

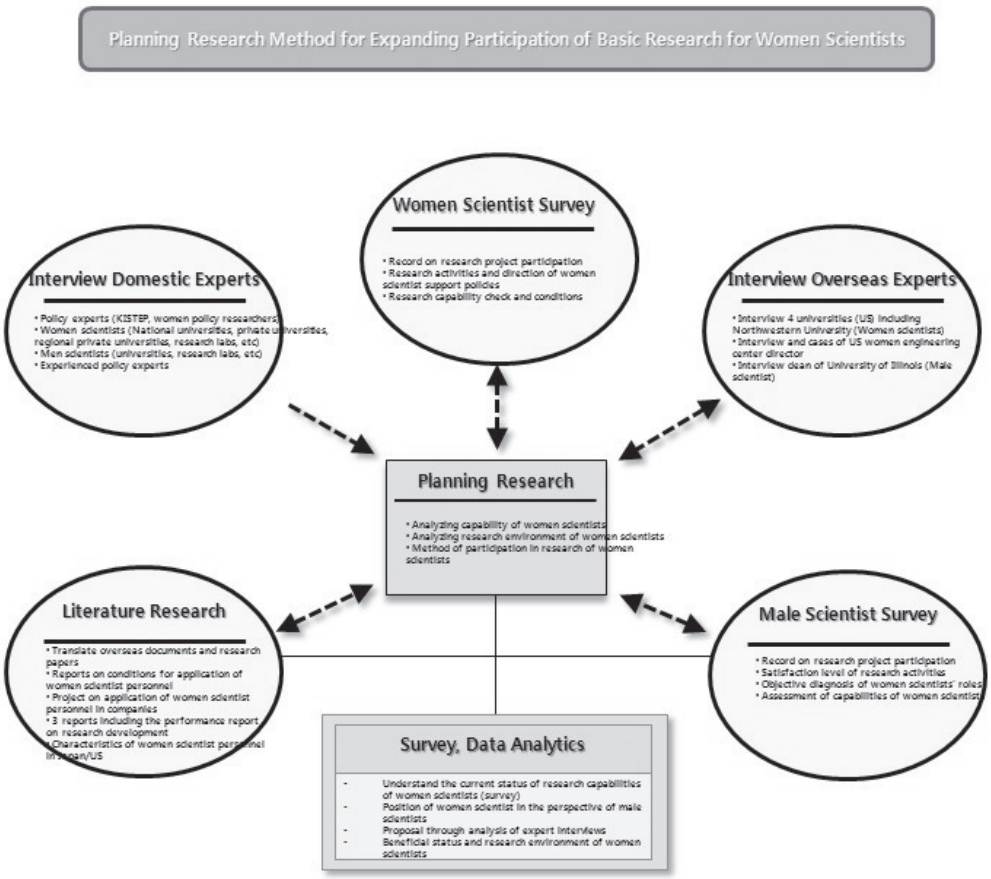
I. The purpose of a research development



1. Content of research development



2. Research and Development Method



III. Researc

1. Assessment and Application Method of Ratios for Women's Quota System

2) Assessment Method of Ratios for Women's Quota System (GAP Analysis Application)

- Define $W(R_1), W(R_2), W(R_3), W(R_4), W(R_5)$ as the ratio for women's quota system in each area R_1, R_2, R_3, R_4, R_5 is the ratio(academic fields of studies: 1~5)= Stands for GAP1(academic fields of studies)

- When setting the ratio of women among the entire science and technology personnel to women's quota system W(R), the following algorithm can be developed.

- ΔA Increment of women scientists in the last 5 years (annual increase rate)

- (i) If $R_i \leq W(R)$ $W(R_i) = \max(R_i + \Delta A \times 2, W(R), GAP_2(i))$ $i = 1,2,...,5$

- (ii) If $R_i > W(R)$ $W(R_i) = R_i$

- Application Method of Women's Quota System. Apply $W(R_1), W(R_2), W(R_3), W(R_4), W(R_5)$ Women's Quota Systems by study

2) Optimal Ratio of Women on Evaluation Committee for Basic Research Project

- When composing evaluation committees for each research project consideration must be made o n the proposed ratio as 40% for commission position based on the Framework Act on Women's Develop ment in accordance to the Gender Equality Act

3) Validity of dividing the supporting projects for general researchers and women scientist

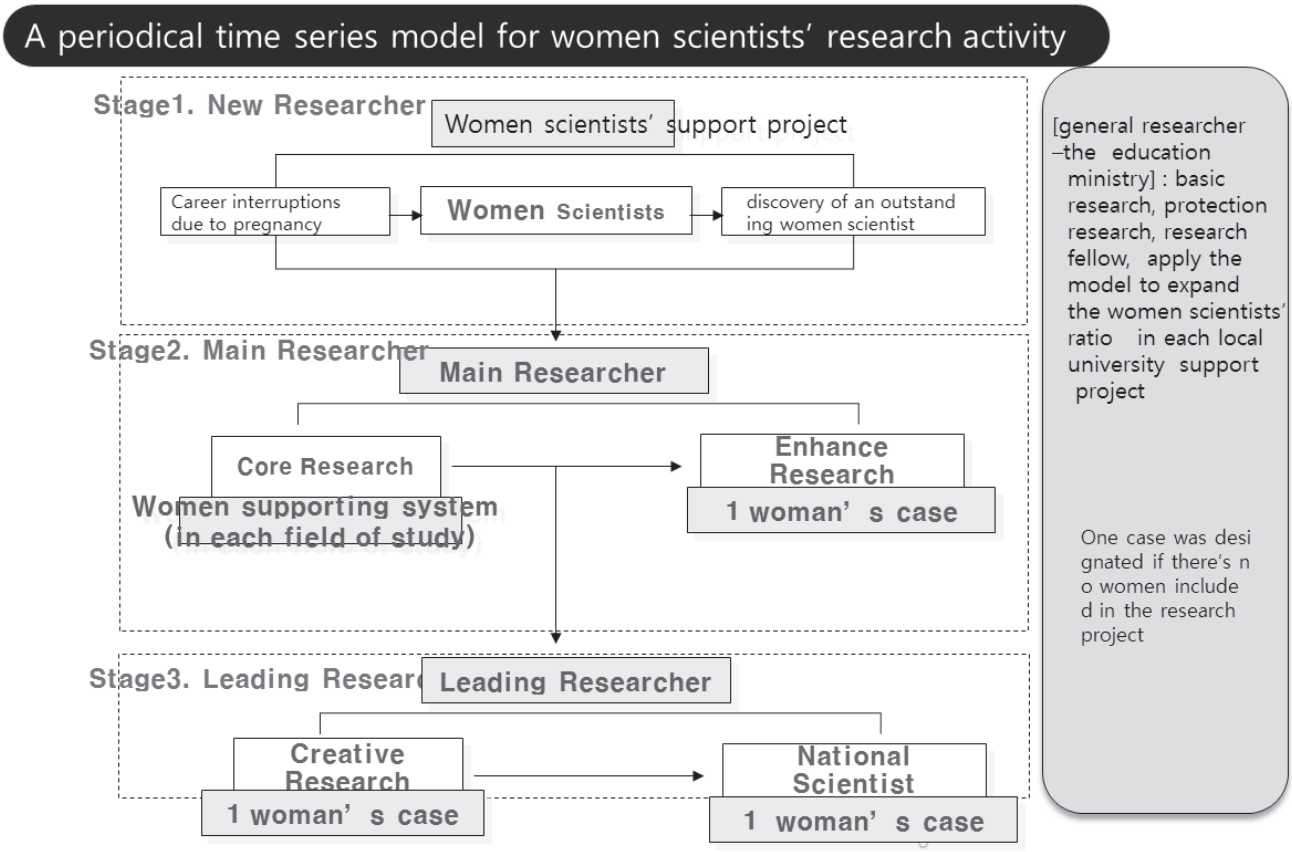
Difficulties exist in securing minimal supporting conditions for women scientist when budget cut occurs by applying the ratio of the women's quota system that follows the budget of ge neral research support projects when the support project for women scientists are included in the general research support project.

- Reception rate of minimal secured women scientist research budget decreased when the secu red minimal number of support projects for women scientists were absorbed into the ge neral support projects

- Differentiation must exist for women scientist supporting projects in the degree of realizing

gender sensitive policies

4) Development of a Periodical Model for Women Scientists through basic research support proj ects



Appendix

Speakers and Moderators

BRIEF INTRODUCTION OF KEYNOTE SPEAKERS OF THE MEETING OF ASIA AND PACIFIC NATION NETWORK

Kong Joo Lee, Ph.D., President of INWES, Professor in College of Pharmacy, Ewha Womans University, Korea

Special Talk: History, achievements, challenges and future of INWES.

Brief Intro: Kong-Joo Lee received her B.S in Pharmacy from Ewha Womans University, Republic of Korea, M.S from the Korean Advanced Institute of Science and Technology (KAIST) and Ph.D. in Biophysical Chemistry from Stanford University, CA, USA. She is currently working as a professor of the College of Pharmacy, Ewha Womans University, Republic of Korea.

Hyang Sook Yoo, Ph.D., Researcher emeritus, Korea Research Institute of Bioscience & Biotechnology (Former chairperson, APNN)

Special Talk: History and propose the perspective of APNN.

Brief Intro: Hyang Sook Yoo received her B.S in Pharmacy and M.S in pharmacodynamics from the Seoul National University, Republic of Korea, respectively, and M.A in Biochemistry from the University of California, USA and Ph.D. in Molecular Biology from the University of Pittsburg, USA. She is currently working as a principal scientist at the Korea Research Institute of Bioscience and Biotechnology, Republic of Korea.

Gail G. Mattson , P.E., CHMM, PMP, Associate Laboratory Director, Environment Safety & Health Brookhaven National Laboratory

Special Talk: The Society of Women Engineers – Challenges and Accomplishments.

Keynote Speaker: Innovative Programs for Women in STEM at 10:50-11:20 on June 26, 2015

Brief Intro: Gail Mattson is a registered professional engineer in 7 states with over 30 years experience in environmental engineering, safety, radiological control, project management, business development and corporate relations. She has a BS in Chemistry and Biology and received her MSE in Environmental Engineering from the University of Washington. Presently, Ms. Mattson has authority and responsibility over all of the operations of the ES&H Directorate at Brookhaven National Laboratory, which is one of the US Department of Energy's (USDOE) multipurpose research institutions that operates cutting-edge large-scale facilities for studies in physics, chemistry, biology, medicine, applied science, and a wide range of advanced technologies. During her career, she has been responsible for leading major technical proposal efforts winning over $175 M in new contract awards over 4 years; managed a $200M/ 5 year environmental remediation program at a USDOE site that encompassed operations of nuclear facilities; and had been responsible the $200 M/year

USDOE waste management program to safely store and treat hazardous, mixed, transuranic and low level radioactive wastes.
In addition to 25 years of involvement with the Society of Women Engineers at the section, region and national levels, including the FY01 National President, Ms. Mattson is a founding member of the International Network of Women Engineers and Scientists (INWES) and the INWES Education and Research Institute. She has also served in various local, regional and national positions with the American Society of Civil Engineers, the American Association for the Advance of Science, the Academy of Certified Hazardous Materials Managers, Girl Scouts of USA, Girls, Inc., and Rotary International.

BRIEF INTROCDUTION OF APNN CHAIRPERSON

Kayoko Sugahara, President of JNWES
Chair: APNN chairperson

Brief Intro: Ms.Kayoko Sugahara has Physics BS (1979), MS (1981) at Ochanomizu Women's University. In 1983, she started her career as a software engineer in IBM Japan and became a well-known technical leader in the open systems database communities in IBM. She was the first women Distinguished Engineer in AP (Asia Pacific of IBM) in 2004, and was elected as a member of IBM Academy of Technology in 2004. She retired from IBM in 2010.
She was the first chairperson of COSMOS (IBM-Japan technical women forum) from 2005 to 2008. Since then, she devoted her passion to the activities at technical women communities outside IBM too. She was a chairperson of JWEF (Japan Women Engineer Forum) from 2006 to 2007 and president of JNWES (Japan Network Women Engineers and Scientists) since 2012.
She is Visiting Professor of Tokyo University of Agriculture and Technology since 2009, IT System advisor for International Christian University between 2011 and 2014, and Board Member of INWES since 2011/7 at ICWES15 in Australia Adelade. She is Advisor of Gender Equality office, Japan Aerospace Exploration Agency since 2013..

BRIEF INTROCDUTION OF PRESIDENT OF WSTEM

Ariunbolor Purvee, Ph.D., President of WSTEM
Co-chair: APNN meeting.

Brief Intro: Ariunbolor Purvee holds a Master's degree in Mining Engineering from the Mongolian University of Science and Technology and PhD in Electrical Engineering from the Central Mining Research Institute, India. She has approximately twenty two years of working experience in both mines and mining engineering institutions, currently is working at the Department of Mining Engineering, the Mongolian University of Science and Technology. She is also a researcher on mining electrical equipment and mining automations. Her research interests are in online condition monitoring of electrical motors, artificial neural network, signal processing, robust design and quality engineering, quality of energy in electrical power supply system, dynamic simulation based on Matlab and product simulation based on engineering statistics. In particular, she is interested in the role of dynamic simulations as diagnosis faults in electrical and mechanical equipment and quality of nergy of low voltage power supply systems and artificial neural network. She is familiar with MATLAB programming and Simulink and engineering programming on Excel.

BRIEF INTROCDUTION OF VISE PRESIDENT OF WSTEM

Undram Chinbat, Ph.D., Professor of National University of Mongolia and Vise President of WSTEM

Brief Intro: Undram Chinbat, D.Econ and Professor, Director of the Academic Affairs of the National University of Mongolia.

Undram Chinbat has gained her Doctoral degree in Economics from the, Graduate School of Economics, Nagoya University in Japan. The subject of her dissertation is “Project Management and Simulation Analysis of Mining and Iron Enrichment Plant”.

BRIEF INTROCDUTION OF SPEAKERS OF COUNTRY REPORT

Kumi Nitta, Ph.D., Function-Sub-Manager, ERG Project Team （Exploration of energization and Radiation in Geospace Project Team, Institute of Space and Astronautical Science (ISAS), Japan Aerospace Exploration Agency (JAXA)

Brief Intro: Dr. Nitta recived her B.S degree in physics from the Japan Women's University('89) and Ph.D. degree ('05) in Electrical Engineering from The University of Tokyo, Japan. She was a R&D Engineer at the Toshiba Corporation (1989-2002). She was a visiting researcher at Electrical Engineering of TU Delft in 2000. In 2005, She has joined JAXA of the Space Power System Group. Her research involved topics are protecotion for space Debri, plasma physics and material science, including charging and discharging phenomena in space.

Dr. Seong Ok Han, Ph.D., President of KWSE, Senior Researcher of Korea Institute of Energy Research.

Brief Intro: Dr.Seong Ok Han is the President of the Association of Korean Woman Scientists and Engineers (KWSE), as director of the board of INWES and has been actively involved and contributed in activating in exchanging information and building network among women scientists and engineers. Dr. Han has made an impact on acknowledging the Korea Woman Scientists and Engineers’ activities to all around world, while she was serving a Chair of public relations in the organizing committee of ICWES13 and has played important roles as Chair, organizing committee of international

conferences of BIEN2013 and Chair of 2014 APNN & MAPWiST.
She also serves as a role model for girls through her role as science ambassador to pursue their dreams as future scientists and engineers. Dr. Han has played a role as a model scientist in Material Science and Chemistry with successfully performing major national research and development projects and was the first woman taken in the leader's position role at Korea Institute of Energy Research in 2011. Dr. Han has also actively involved in government committees. She has various experiences and successful accomplishments of working in policy activities, budget reviews for national science and technology R&D of governmental and organizational committees. In recognition of these contributions, Dr. Han was awarded the Highest Medal in science and technology from Ministry of Science, ICT and Future Planning, 2014.

Wai Yie Leong, Ph.D., Lead for Health Research Group / Associate Professor of Taylors University, Malaysia, Chairman, Institute of Engineers Malaysia, Women Engineer section (IEM WE)
Brief Intro: Dr.Wai Yie LEONG received her Bachelor and Ph.D in Electrical Engineering from The University of Queensland, Australia respectively. Her research areas are remote sensing and tracking system for Aerospace Industry and defect extraction system for Aerospace Industry.

Dr. Chia-Li Wu, Ph.D., Emeritus Professor of Chemistry, Tamkang University, Taiwan
Brief Intro: Dr.Chia-Li Wu is a natural product chemist. She is an Emeritus Professor of Chemistry of Tamkang University, Taiwan, where she was previously Chemistry Department Chair. She has been participating women's groups for women's rights and gender equity education more than 30 years in Taiwan. She was once on leave to take a government position in a Standing Committee of Examination Yuan, which is in charge of supervising all national exams for screening civil servants and policies related to civil service.

In 2009, she and her Awakening group created Awakening's Digital Archive for Women's Movements to systematically document the progress of the women's rights movement in Taiwan in an initiative supported by the ROC Ministry of Science and Technology.
In 2008, under the support of a gender and science project, she founded the E-journal for Taiwanese Female Scientists and Technologists to raise the visibility of the nation's women scientists and to build a network among them.
She obtained her PhD from the University of Washington, Seattle, her MS from the University of Wisconsin-Milwaukee and her BS from National Taiwan University.

Phan Thi Thuy Tram, Ph.D. Deputy Director, Macroeconomics and Strategies Studies Department, Vietnam Institute for Development Strategies, Ministry of Planning & Investment

Brief Intro: Dr.Phan Thi Thuy Tram received Bachelor of Sciences in Foreign Economies from the Foreign Trade University and High level Degree in Politicsanf from Ho Chi Minh Academy of Politics and Administration, and Master (LLM) in International Affairs Law from the Francois Rabelais de Tours University of France and P h.D.in World Economy and i nternational relations from the Institute of Social Sciences of the Vietnam Academy of Social Sciences.

Harshana Shrestha, Water Use Master Plan Consultant, HELVETAS Swiss Intercooperation Nepal, Nepal

Brief Intro: She is one of the Women in Science and Engineering in Nepal (WISE Nepal) and Water Use Master Plan Consultant, HELVETAS Swiss Intercooperation Nepal, Nepal. She received her B.S in Civil Engineering from the Ins titute of Engineering, Pulchowk Campus, and Masters in Rural Development from Tribhuvan University, Nepal and M asters in Water Engineering and Management from the A sian Institute of Technology, Thailand. Her research areas are Hydrology, Integrated Water Resources Management, Climate change and Disaster Risk Reduction.

Dillip Pattanaik, Development Consultant, ICT4D Expert, Global Speaker, Expert - Youth in Action, Environment and Women in STEM.

Brief Intro: Dillip has been involved with a number of national / international alliances related to skill up gradation of young women engineers and scientists in India and beyond for over 10 years. He has been supporting Women in Science & Engineering (WISE India) being its Vice President, with the objective of promoting women engineers and scientists across the nation. Dillip has been representing WISE India at various forums since the organization's inception. To reach out with the goals of INWES across the globe, Dillip has also initiated WISE (independent country chapters of INWES) in Sri Lanka, Nepal and Bangladesh in recent past. Besides WISE India, Dillip has also been associated with many national and international alliances, organizations, institutions and carried out many study research, projects and programs on gender equality and equity, basic education to rural women and girls, bridging the digital divide between men and women in urban and rural India, empowering and educating women to advocate for their quality of life, advocating women's stake in infrastructure development and governance, advocating health and hygiene education of women in India, etc. He has been relentlessly pursuing research and action for upliftment of rural and isolated communities through various developmental activities promoting and disseminating affordable technologies. Reiterating his commitment to ensure and gender equality and enhance access to information, he has gathered a lot of experience at the grassroot level as well as a well recognition across globe.

BRIEF INTRODUCTION OF KEYNOTE SPEAKERS OF THE INTERNATIONAL CONFERENCE OF WOMAN IN SCIENCE AND TECHOLOGY

Amarjargalan Tumurbaatar, Professor of Textile Technology Department, School of Industrial Technology(SIT), Mongolian University of Science and Technology (MUST) and a board member of WSTEM.

Keynote Speaker: Development & Innovation of Mongolian Higher Education System

Brief Intro: Amarjargalan Tumurbaatar received her B.S and M.S in Engineering and Ph. D in Science from the Ivanovo State Textile Academy,Russia, respectively. She is a member of rector's council of the Mongolian University of Science and Technology and member of the Academic Council for depending PhD degree on Industrial technology and member of the Mongolian National Council for Education Accreditation.Her research areas are Engineering education, University& Industry cooperation, Triple Helix.

Gerel Ochir, Professor, Director of Geoscience Center of the School of Geology and Mining, Mongolian University of Science & Technology. Past-Vice-president of International Union of Geological Sciences (2008-2012).

Keynote Speaker: Geoscience Education in Mogolia: Present and future

Brief Intro: Dr.Gerel Ochir graduated in 1964 from Charles University in Prague, Czech Republic, where received RNDR (BSc & MSc) in Geology. Since 1965 she is a lecturer at the Department of Geology and Mineralogy, Associate Professor and Professor, Head of the Department of Geology and Mineralogy from 1978 to 2009. She received PhD degree in Petrology from the Institute of Earth Crust in 1978, and ScD degree in Petrology and Geochemistry from the Institute of Geochemistry, Russian Academy of Science in 1990. O. Gerel established and developed geological education and research in Mongolia. She was a leader and co-leader of 20 international and ten domestic projects.

O. Gerel has been active as a leader and member of many professional geological organizations. She is editor and co-editor of twenty books, author of 25 scientific reports, five textbooks, and 280 scientific papers, editor of four international professional journals, speaker at more than 70 international Geological Congresses and Symposia, supervisor of 25 PhD students. She worked as a Visiting Professor and researcher at several foreign universities. Gerel was awarded the Honored Scientist of Mongolia (2009), highest award of the Mongolian Universities Consortium (2001), Mongolian University of Science and Technology award for research (1996, 1999, and 2000), Honor Geologist of the Mongolian Geology (1981), Honor Teacher of Mongolian Education (1990), Honor Scientist of Mongolian Science (1995), and the Mongolian governmental Orders and Medals.

Toyoko Imae, Sc.D.Honorary Chair Professor of Graduate Institute of Applied Science and Technology National Taiwan University of Science and Technology.

Keynote Speaker: What is the evolution of science and technology in 21 century toward the progress of our life?

Brief Intro: Toyoko Imae was born in Japan. She joined the National Taiwan University of Science and Technology, Taiwan, as honorary chair professor in April 2009, immediately after retiring from Keio University, Japan. She is also professor emeritus of Nagoya. University, Japan, since 2006 and a visiting professor of Yamagata University (iFront Doctoral Program), Japan, and University of Malaya (under Academic Icon), Malaysia, since 2013.

Her major research areas are the fabrication, functionalization, and physicochemical investigation of nanomaterials, including polymers, nanoparticles, and molecular assemblies, in solutions and at interfaces. Her resent research target is a "Nanoarchitecture and Nanotechnology" towards energy, environmental and biomedical sciences. Prof. Imae has published more than 300 peer-reviewed journal articles, 25 reviews, and 25 book chapters. She also edited three books of Advanced Chemistry of Monolayers at Interfaces: Trends in Methodology and Technology (2007), Neutrons in Soft Matter (2011) and Skin Bioscience: A Molecular Approach (2014). She has been conferred several awards as represented by "Promising Scientist Award of The Society of Japanese Women Scientists" (1999). She also contributes to the academic advancement as typified by a president of Asian Society for Colloid and Surface Science, from 2013. Prof. Imae was an executive member of the Council for Science and Technology Policy in Japan and a member of the Science Council of Japan.

Rolf Peter, Ph.D., Leader of GIZ-GMIT project, German Mongolian Institute for Resources and Technology.

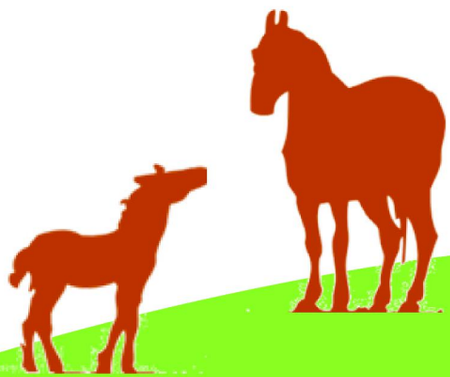
Keynote Speaker: The German-Mongolian Institute for Resources and Technology – a model for reform of Mongolian higher education.

Brief Intro: Dr.Rolf Peter Works as Programme Director at GIZ, the "Deutsche Gesellschaft fuer Internationale Zusammenarbeit" in Mongolia. He is in charge of establishing the German-Mongolian Institute for Resources in Technology (GMIT). Holding a PhD in Social Science from the University of Mannheim, his career includes teaching and research in the field of International Relations at different universities in Germany and Russia. For the last 10 years, he has been working as an advisor in the higher education sector – not only in Germany, but at the European Union, in the Balkans, Russia and Kazakhstan. His expertise focuses on institutional development of universities and the reform of higher education systems. He is 44 years old, loves movies and a good read as well as hiking, mountain climbing and biking.

Ran Baik, Ph.D., Professor, Department of Business, College of Business, Honam University, Republic of Korea.

Keynote Speaker: A program research to enhance women scientists' participation rate in basic research projects.

Brief Intro: Ran Baik received her B.S in Mathematics from SungKyunKwan University, Republic of Korea, M.S in Mathematics from the North Carolina State University, Raleigh, NC., U.S.A. and Ph.D. in Computational Mathematics from Northern Illinois University, Dekalb, IL, U.S.A. She is currently working as a professor of the Department of Business, College of Business, Honam University, Korea. Her was awarded the superior faculty award in 20114 and 2006, Honam University, Republic of Korea.



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